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ABSTRACT

Education for economic growth has become a rallying cry in state capitols in recent years. Initiatives in every state, prompted by legislators, governors, and the business sector, are intended to upgrade teaching and learning in the face of a dynamic, global economy. Competing theories describe the nature of that economy and argue over whether the United States will become a two-tiered society; however, the antagonists agree over the role of education in teaching prospective employees how to adapt their skills to meet the needs of a changing economy. Although education appears not to have figured prominently in business decisions on where to expand or relocate, this situation may be changing. More states are concentrating on nurturing homegrown businesses instead of chasing after that once-in-a-lifetime business location decision. The needs of employers are important to state efforts to link education and economic growth; just as important, however, are the needs of the potential employees (the students). Because the backgrounds of students are more diverse than in the past, policymakers will have to target their educational programs more effectively. At the same time, demographic trends indicate that citizens of one state will have a vested interest in the education provided to young people in other states. Educators want to be more involved in decisions affecting state economic development, but institutional linkages need to be forged. Although the verdict remains out on the impact of all this new activity, it is time for state policymakers to begin raising the appropriate questions. (KC)

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EDUCATION AND ECONOMIC GROWTH

A Legislator's Guide

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The Conference operates from offices in Denver, Colorado, and Washington, D.C.

Executive Director: William T. Pound

EDUCATION AND ECONOMIC GROWTH

A Legislator's Guide

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Table of Contents

Acknowledgments v

Executive Summary vii

I Introduction to Education and Economic Growth 1

II Welcome to the World of Work 5

III The Role of Education in Business Location Decisions 21

IV Look Who's Coming to School 39

V Do Education/Economic Growth Linkages Exist? 65

VI Promising State Initiatives 75

VII Putting the Pieces Together 93

Appendix—CCSSO Study Commission Survey on Education and the Economy 109

Selected References and Resources 117

List of Tables and Figures

Figure 1	Employment by Major Economic Sector	6
Table 1	Ten Most Rapidly Declining Occupations	7
Table 2	Ten Fastest-Growing Occupations	9
Table 3	Ten Occupations with Largest Job Growth	10
Table 4	U.S. Earning Distribution of Workers	13
Table 5	Educational Requirements for Job Openings	13
Figure 2	1986 State Ranking with National Average and Scores	28
Table 6	Index of Available Workforce	29
Table 7	Index of Educational Resources	30

Table 8	State Rankings 1987	32
Figure 3	Change in Public School Enrollments	40
Figure 4	Projected Change in School-Age Population	41
Table 9	High School Dropout Rates by State	42
Figure 5	U.S. Projections, High School Graduates	44
Figure 6	Regional Projections, High School Graduates	45
Figure 7	Minority Enrollment	47
Figure 8	State Comparisons of Projected Black Population	48
Figure 9	State Comparisons of Projected Spanish-Origin Population	49
Figure 10	Index of Requirements for Special Educational Services	51
Table 10	Composite Index of Educational Service Requirements	52
Figure 11	High School Completion Rates	53
Figure 12	Dropout Rates of Public/Private High School Sophomores	55
Figure 13	Dropout Rates of Public High School Sophomores	56
Figure 14	The Educational Pipeline	58
Figure 15	Projected Student Enrollment	59
Figure 16	Indicators of Growing Youth Problems	60
Table 11	Education Policies Proposed	70
Table 12	States Reporting Using Economic Growth	70
Table 13	Spectrum of College/University Roles	72

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Peggy M. Siegel
Former Education Program Manager
National Conference of State Legislatures
December 1987

Executive Summary

Economists might call for a cost-benefit analysis. Politicians might claim: "There's no such thing as a free lunch." And Bruce Springsteen might sing: "The door's open, but the ride it ain't free." Whatever the source, the message is the same. It is a message that describes the relationship between education and economic growth.

The nation's leaders are preoccupied with thoughts of making America economically competitive. State agendas are overflowing with programs to reform and restructure education. Clearly, opportunity has knocked, the door's been opened, and only now are we assessing the costs and the outcomes.

Education for economic growth has become a rallying cry inside state capitols in recent years, rivaled only by calls for educational excellence. Frequently, the slogans are used interchangeably. They describe initiatives in every state, prompted by legislators, governors, and the business sector, to upgrade teaching and learning in the face of a dynamic, global economy (Chapter 1).

Competing theories describe the nature of that economy and argue over whether the United States will become a two-tiered society. Where the antagonists agree, however, is over the role of education in teaching prospective employees how to adapt their skills to meet the needs of a changing economy, whatever its nature (Chapter 2).

Rhetoric notwithstanding, education appears not to have figured prominently in business decisions on where to expand or relocate. Yet this situation may be changing, particularly as more and more states concentrate on nurturing homegrown businesses instead of chasing after that once-in-a-lifetime business location decision, such as the one involving the celebrated Saturn plant (Chapter 3).

Certainly, the needs of employers are important to state efforts to link education and economic growth. Just as important, however, are the needs of the potential employees, the students. Because the backgrounds of students are more diverse than in the past, policymakers will have to target their educational programs more effectively. At the same time, demographic trends indicate that citizens of one state will have a vested interest in the education provided to young people in other states (Chapter 4).

When it comes to education and economic growth, state education agencies and departments of development seem to be going

their separate ways. Educators want to be more involved in decisions affecting state economic development, but institutional linkages need to be forged. Newest efforts to cooperate are found primarily at the postsecondary level but even here, hard data on what policies work best are scarce (Chapter 5).

A number of state initiatives show promise in assisting legislators to evaluate the impact of their reform efforts. These range from state practices that involve strategic planning and analysis of demographic trends; to policy decisions that provide oversight of public school and postsecondary reforms; to efforts that coordinate policy decisions, both within and across state lines (Chapter 6). Several states, some with more success than others, have adopted more comprehensive, long-term industrial plans.

Although the verdict remains out on the impact of all this new activity, it is time for state policymakers to begin raising the appropriate questions. It is sincerely hoped that this legislator's guide to education and economic growth will assist them in this effort (Chapter 7).

I

Introduction to Education and Economic Growth

"It is our conviction that economic growth is essential. And it is our judgement that a high general level of education is perhaps the most important key to economic growth."

Task Force on Education
for Economic Growth,
Education Commission of
the States, *Action for Excellence*

"In short, the educational reform movement is powerful and effective because it is rooted in a set of economic changes that are requiring educational adaptation."

Paul E. Peterson, The Brookings
Institution,
"The Politics and Economics
of Educational Reform"

Education for economic growth has become a rallying cry inside state capitols in recent years, rivaled only by calls for educational excellence. Frequently, the slogans are used interchangeably. Based on the premise that a better educated workforce will help bolster a state's economy, policymakers created task force upon task force—280 in their heyday in 1984—to advise them on how to improve the schools.

Individual efforts of legislators and governors to forge the education-economic growth link were aided greatly by national reports, such as *A Nation at Risk*, which in April 1983 issued the now-famous warning: "The educational foundations for our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people."[1] A few pages later, the report made the economic growth-education connection explicit:

> More and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion. the number of traditional jobs shrinks, and new jobs demand greater sophistication and preparation.[2]

The push for educational improvements is not without its international dimension. In responding to President Reagan's call for recommendations to sharpen America's competitive edge in the world marketplace, the Business-Higher Education Forum concluded in April 1983:

> We make one central recommendation: Our society must develop a consensus that industrial competitiveness on a global scale is crucial to our social and economic well-being. . . . Unless we rebuild the American economy and strengthen our educational system, it will be increasingly difficult—if not impossible—to maintain a just society, a high standard of living for all Americans, and a strong national defense.[3]

The forum went beyond calling for technological innovations. The 16-member task force—including university presidents from Harvard, Notre Dame, and the University of California, as well as executives from Rockwell, Ford, General Electric, and AT&T—also called for institutional change. This translated into building new partnerships among government, business, education, labor, and individual citizens. Urged the forum: "Above all, we need a focused national commitment. We must start now."[4]

Just what has resulted from these calls for action? Here are four observations:

First, amid entreaties for national action, most of the initiatives linking education and economic growth are occurring at the state level. Formerly considered the fallen arches of the federal system, state governments now are setting the pace in reforming current policies. As *The Washington Post* columnist David Broder noted, New Federalism has, in fact, been realized, mainly through the efforts of state elected officials. "That shift is what Reagan set out to accomplish four years ago," wrote Broder in 1985, "and the extent of his success is measured by the degree of normality governors and legislators of both parties now see in a situation that truly is revolutionary."[5] Nowhere is the shift from federal to state agenda-setting more striking than in the current education reform movement. "Through federal budget policy the states have been starved, not into submission, but into self-reliance," add education policy analysts Denis Doyle and Terry Hartle.[6]

Second, the push to improve education for economic growth is involving new players. Most states now have formal partnerships involving business, labor, education, and general government. Recognizing that it will be the main beneficiary of an educated—and employable—workforce, the private sector has offered its resources and support to individual schools, to state blue ribbon study commissions, and to university-based research and development (R&D) efforts. Many captains of industry argue for business involvement in education over the long haul. Asserts William Woodside, chair and former chief executive officer of Primerica (the American Can Company), this involvement "will mean organizing [the corporate sector] into an active, sustained support mechanism on behalf of public education."[7] Or, as the Committee for Economic Development admits: "A firm and enduring commitment to excellence in education on the part of America's business community is not merely a matter of philanthropy; it is enlightened self-interest."[8] The inevitability of linking education to economic growth became clear for educational policymakers, as fewer voters had kids in school and therefore less of an obvious self-interest in supporting education.

Third, not only does the current education reform effort enlist new players, it also involves old players in new roles. Governors and legislators, long accustomed to proposing education budgets and appropriating the funds, now are spelling out the particulars of education policies as well. During the mid-to-late seventies, most legislatures excelled at designing school finance formulas to boost and equalize the distribution of state aid to school districts. Back then, the discussion centered on funding. Today, the legislative debate is more likely to highlight specific programs—career lad-

ders, pupil competency testing, more time in school, and university-based centers of excellence, to name a few. Money is still a very real concern to lawmakers, but so is what the money will buy.

Fourth, most state efforts to link education and economic growth in large measure are based on good faith. National debates using education to improve economic well-being date back more than 100 years, to the creation of the land grant colleges in 1862. But these debates are a fairly recent phenomenon at the state level. We certainly can assume the existence of a relationship between education and economic growth on common sense grounds; that is, educated individuals are more likely to have jobs, are easier to retrain, and, as employees, are able to pay taxes and purchase products and services provided by others. Conversely, individuals who lack education are more likely to be unemployed, non-taxpaying citizens, and "consumers" of expensive public services, such as welfare and the correctional system. Yet we simply do not know yet which of the myriad of state reforms enacted over the past several years will make high school graduates more creative, more productive, and essentially more employable. We simply do not know yet which job training, research and development, or state technical assistance efforts involving postsecondary institutions will contribute significantly to improving a state's economy.

It may be too early to assess the impact of most state initiatives linking education with economic growth. It is not too early, however, to highlight some of the more promising state initiatives. Nor is it too early to raise the appropriate questions for legislators to assess these programs. This is the purpose of this book.

Notes

1. *A Nation at Risk*, The National Commission on Excellence in Education (Washington, D.C.: Department of Education, April 1983), p. 5.
2. Ibid., p. 12.
3. *America's Competitive Challenge*, A Report to the President of the United States from the Business-Higher Education Forum, Washington, D.C., April 1983, p. iii.
4. Ibid., p. iv.
5. David S. Broder, "Reagan's Ironic Revolution," *The Washington Post*, August 11, 1985.
6. Denis P. Doyle and Terry W. Hartle, *Excellence in Education, The States Take Charge* (Washington, D.C.: American Enterprise Institute, 1985), p. 63.
7. Remarks by William Woodside, "Business in Education: How Good a Grade," presented to the New Business Initiatives in Education Conference, New York, N.Y., March 27, 1985, p. 10.
8. *Investing in Our Children* (Washington, D.C.: Committee for Economic Development, September 1985), p. 5.

II

Welcome to the World of Work

"Last year, McDonald's became a larger employer than U.S. Steel."

Linda O'Bryon, Co-anchor,
"The Nightly Business Report"

"We are moving from the bump, funk, and clunk era to a world in which everything whirs very gently."

George T. Rehfeldt
Cincinnati Milacrom Inc.

Business analysts agree that the U.S. economy is changing radically. Where they differ is over what the changes mean for the workforce—and the education system that must prepare it.

During 1983, the United States began to climb back from the deepest recession since the 1930s Depression. The employment ranks swelled with a net increase of eight million jobs between November 1982 and June 1985, and the unemployment rate dropped from over 10 percent to 7.2 percent.[1]

Yet the mix of jobs has been changing. Employment cutbacks in goods-producing industries triggered over 90 percent of the jobs lost during the 1981-82 recession. This sector, however, made up only a third of the new jobs during the recovery.[2] The production of

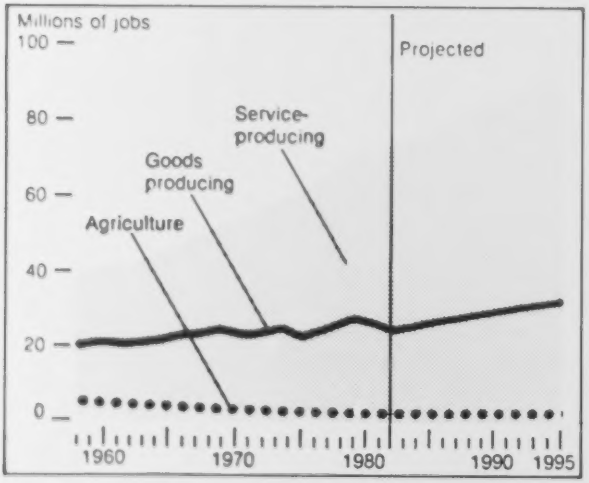
goods is giving way to the provision of services, a trend that began several decades ago and is expected to continue into the 1990s. (See Figure 1.) Notes M.I.T. economist David Birch: "Only 10 percent of our labor force makes anything . . . [and] only 2.5 percent of our labor force grows things."[3]

The service sector has been the largest job generator in recent years, with small businesses leading that growth. From 1976 to 1982, firms with fewer than 100 employees generated 52.6 percent of the total net employment growth.[4] Between 1980 and 1982, these new enterprises in fields such as education, law, and social services increased their ranks by 10 to 15 percent each year. One in every six new jobs comes from manufacturing. Although this sector will account for nearly 19 percent of all jobs by 1995, three out of four new jobs will be in provision of services.

The transformation from a manufacturing to a service economy may be misleading, however. Notes Janet Norwood, U.S. Commissioner of Labor Statistics: "Job growth within broad industries has been uneven, and we expect that it will continue to be uneven."[5]

Figure 1.

Employment by Major Economic Sector, 1955-1982 and Projected 1982-1995



Source: "Our Changing Economy: A BLS Centennial Chartbook," Bulletin 2211 (Washington, D.C.: Bureau of Labor Statistics, 1984), p. 49.

Steel, textiles, and leather may be declining industries, according to the Bureau of Labor Statistics, but manufacturing industries such as pharmaceuticals, computers, electronic components, and health care instruments are projected to expand. The real shift, argues M.I.T.'s Birch, is not away from manufacturing into service jobs but from "reliance on muscles and dexterity to reliance on brains."[6] The strict dichotomy between manufacturing and service jobs no longer may make sense.

Then what will the labor force of the future look like? The Bureau of Labor Statistics (BLS) has developed job growth projections for 1,700 occupations between 1982 and 1995. BLS expects the total labor force to grow more slowly during the next decade than during the past decade, encompassing 131.4 million people by 1995. The economy will generate 25.6 million more jobs between 1982 and 1995. Women will account for two-thirds of the growth and minorities for one-quarter. The workforce is also growing older, with more adults aged 25 to 54 and fewer members aged 16 to 24.[7]

Table 1.

The Ten Most Rapidly Declining Occupations

Occupation	Number of Jobs in Workforce	Percentage Decline 1982-1985
1. Railroad conductors	18,000	−32.0
2. Shoemaking machine operators	36,000	−30.2
3. Aircraft structure assemblers	26,000	−21.0
4. Central telephone office operators	87,000	−20.0
5. Taxi drivers	52,000	−18.9
6. Postal clerks	252,000	−17.9
7. Private household workers	850,000	−16.9
8. Farm laborers	1,019,000	−15.9
9. College and university faculty	632,000	−15.0
10. Roustabouts	80,000	−14.4

Source: George T. Silvestri, John M. Lukasiewicz, and Marcus E. Einstein, "Occupational Employment Projections Through 1995," *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, November 1983), pp. 37-49.

Shrinking Occupations

Some occupations are expected to decline over the next decade, primarily industries that are either contracting or severely affected by technological change, as indicated in Table 1.

Expanding Occupations

Fewer of us will be conducting trains, making shoes, or driving cabs. But what will more of us be doing? Working on computers or assisting lawyers, according to the BLS projections listed in Table 2. Most of the fastest-growing occupations of the next decade will come from high-technology fields, accounting for 3 to 17 percent of all new jobs by 1995, depending on the definition of high technology.*

While more and more of us will be working in high-tech fields, most of us still will be performing low-tech skills such as maintaining buildings, ringing up cash registers, and taking lunch orders. In fact, the ten fastest-growing occupations in Table 2 total fewer

*No one definition of *high tech* exists. The Bureau of Labor Statistics has come up with three: (1) The largest group consists of industries where the ratio of scientific and technical workers (engineers, scientists, mathematics specialists, and computer specialists) to all workers is at least 1.5 times the average for all industries. (2) The smallest group consists of industries with a ratio of research and development expenditures to net sales at least twice the average of all industries. (3) The middle group combines both of the other definitions and uses *high tech* to define any industry where the proportion of technology-oriented workers is equal to or greater than the average for all manufacturing industries and where the ratio of R&D expenditures to sales is close to or above the average of all industries.

In an article on "Education's Role in Economic Growth" for *State Legislatures* magazine (October 1983), Dan Pilcher lists the following employment fields considered by economists and investors to be high technology: (1) business and personal computers; (2) genetic engineering; (3) robotics; (4) fiber optics, lasers and microwaves; (5) computer software; (6) office automation; (7) cellular mobile radio; (8) computer graphics; (9) consumer electronics; (10) medical technology; (11) computer chips; (12) data-base services; (13) military technology; and (14) video and advertising technology.

Frank T. Cary, head of IBM, describes *high technology* as "efficient, responsive, quality operations supported by the right tools, the right training, and the right leadership."

Finally, one anonymous wag defines *high tech* as "any industry that creates jobs."

Table 2.

The Ten Fastest-Growing Occupations

Occupation	Number of Jobs in Workforce by 1995	Percentge Growth, 1982-1995
1. Computer service technicians	108,000	96.8
2. Legal assistants	88,000	94.3
3. Computer systems analysts	471,000	85.3
4. Computer programmers	471,000	76.9
5. Computer operators	371,000	75.8
6. Office machine repairers	95,000	71.7
7. Physical therapy assistants	55,000	67.8
8. Electrical engineers	528,000	65.3
9. Civil engineering technicians	58,000	63.9
10. Peripheral EDP equipment & operators	80,000	63.5

Source: George T. Silvestri, John M. Lukasiewicz, and Marcus E. Einstein, "Occupational Employment Projections Through 1995," *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, November 1983), pp. 37-49.

than the number of building custodians projected to be needed by 1995—the leading occupation according to BLS, as indicated in Table 3.

High-tech jobs may be only a small part of the emerging workforce. But application of technology in the workplace will profoundly affect many jobs, including those listed in Table 3. For example, increasing numbers of secretaries will use word processors; bookkeepers will use computerized financial spreadsheets; clerical workers will use automated and computerized record systems to make purchases and update inventory; mechanics will use mini-computers to inspect and diagnose equipment; and telephone operators will use computerized directories.[8]

The application of technology in the workplace can either upgrade or downgrade existing jobs. Will the impact be good news or bad news for the economy and for those who expect to be gainfully employed?

Table 3.

The Ten Occupations with Largest Job Growth in Numbers

Occupation	Number of Jobs in Workforce by 1995	Increase in Jobs, 1982-1995	Percentage Growth 1982-1995
1. Building custodians	3,606,000	779,000	27.5
2. Cashiers	2,314,000	774,000	47.5
3. Secretaries	3,161,000	719,000	29.5
4. Office clerks	3,044,000	696,000	29.6
5. Sales clerks	3,601,000	685,000	23.5
6. Registered nurses	1,954,000	642,000	48.9
7. Waiters and waitresses	2,227,000	562,000	33.8
8. Kindergarten and elementary school teachers	1,877,000	511,000	37.4
9. Truck drivers	2,029,000	425,000	26.5
10. Nurses aides and orderlies	1,642,000	423,000	34.8

Source: George T. Silvestri, John M. Lukasiewicz, and Marcus E. Einstein, "Occupational Employment Projections Through 1995," *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, November 1983), pp. 37-49.

The Bad News Answer: A Bipolarized Society?

Stanford University researchers Russell Rumberger and Henry Levin have studied the BLS job projections and the use of automated machines in several occupations. They predict that technology is more likely to simplify and routinize work tasks, displacing jobs and undermining employment in general and skilled workers in particular.[9] Overall employment growth is targeted to low- and mid-level occupations, conclude Rumberger and Levin. "Not only will high tech provide few job opportunities in the future economy, but most new jobs will require no post-secondary schooling and will pay wages significantly lower than the average."[10]

Already one in five college graduates is taking a job that does not require a college degree, a trend that is likely to continue, according to Ronald E. Kutscher, associate commissioner of BLS.[11] College graduates, however, still enjoy increased job opportunities,

higher salaries, and a lower probability of unemployment.[12] A college degree remains a good investment. But it no longer can guarantee safe passage into the middle class.

The bipolarization of the job market and the decline in the demand for a skilled workforce have been described recently as "the declining middle." In an article for *Atlantic Monthly*, Bob Kuttner claims that well-paid assemblyline workers will be replaced by legions of lower-paid key punchers, clerks, waiters, secretaries, and cashiers. The root of the problem, argues Kuttner, rests with the lack of good jobs, not good workers. "Education and training will make the workforce even more frustrated than it is now,"[13] he concludes. Several economists from Boston College and M.I.T. concur: "The fact that 63 percent of all the new jobs created in America between 1969 and 1982 were in industries paying an average wage of less than $12,500 spells real trouble for future political and economic stability, especially as that low-wage proportion is expected to grow between now and the end of the century."[14] And if this scenario of the future is correct, it has serious ramifications for state policymakers. Even if unemployment remains relatively low, state coffers are also likely to dwindle, as proportionately fewer people earn middle-wage incomes.

Rebuttal

Other analysts, studying the same employment projections, reject these dire predictions. They challenge the pending demise of the middle class with the following arguments:

- *Higher-paid manufacturing jobs are not being replaced by lower-paid service jobs.* While manufacturing jobs are disappearing, decline at the bottom end of the wage structure—textiles, clothing, and leather—has more than offset the decline at the top—automobiles, steel, and iron. Absent the loss of smokestack industry jobs, total employment in 1983 still would have risen by only 0.5 percent.[15]

  Diversity in the service sector prohibits it from being categorized as either all high wage or all low wage. Fast-food operators and nursing home attendants may not make much money. But employees who work in computer services, advertising, communications, and legal services are paid fairly well. Yet all hold service sector jobs.[16] In addition, many low-paying service jobs simply are replacing other low-paying employment, such as that of farm hands or unskilled laborers.[17]

While the BLS research indicates some shift in employment overall, it is toward the higher-paying occupations and away from the lower-paying ones.

- *Technology is not displacing the workforce.* Gloomy predictions of machines replacing workers have been around for a century. According to BLS Commissioner Norwood, the scenario of a huge technology-created labor surplus has not come about in the past, and it seems unlikely to occur in the foreseeable future. New technology has transformed nearly all types of occupations over the past several decades. Although automation may eliminate jobs, it does not necessarily increase total unemployment. In fact, more workers are employed today in the United States than ever before.[18]

The impact of technology on the workforce is also likely to be gradual rather than immediate. Argues business writer Robert Samuelson:

> What is now characterized as high tech simply represents a continuing evolution of technology. It is not clear that the social implications are any more staggering than in the past. The farm mechanization and factory automation of earlier decades brought huge economic advances and social changes. Factory output today is roughly three times the 1950 level, though the manufacturing work force has risen less than a third. Likewise, farm output is more than twice the 1940 level, but the farm work force has declined from a fifth of the total to less than 3 percent. These changes not only increased living standards but also promoted urbanization and the emergence of office and service jobs that, in part, have brought more women into the work force.[19]

- *The middle class is not declining.* The distribution of workers among the top, middle, and bottom third of occupational groups appears to be stable. BLS's Neal Rosenthal examined employee earnings for 416 occupations across the entire workforce for 1973 and 1982. He studied the changes in occupational structure on the distribution of workers into low, middle, and high earning groups and found that the share of workers in the middle remained nearly the same over the 10-year period. Concludes Rosenthal, "Changes in occupational structure alone from 1973 to 1982, whether caused by

Table 4.

U.S. Earning Distribution of Workers 1973 and 1982

416 Occupations Rank by Pay	Annual Pay 1973	Annual Pay 1982	Percent Distribution of Employment 1973	Percent Distribution of Employment 1982
Top third	$10,192-$31,044	$20,020-$40,820	27.7%	29.0%
Middle third	7,696- 10,192	14,196- 19,968	28.9	33.4
Bottom third	1,300- 7,644	4,264- 14,196	43.4	37.6

Source: Neal H. Rosenthal, "The shrinking middle class: myth or reality?" *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, March 1985), p. 4.

Table 5.

Educational Requirements for Projected U.S. Job Openings, 1982-1995

Job Category	High Educational Requirements: New Jobs (in millions)	High Educational Requirements: Jobs (in millions)	Low Educational Requirements: New Jobs (in millions)	Low Educational Requirements: Jobs (in millions)
Professional	5.2	6.6	—	—
Managerial	2.7	4.5	—	—
Sales	0.6	0.7	1.4	1.3
Clerical	2.0	1.1	3.0	4.4
Craft	1.1	1.3	2.0	2.1
Service	0.4	0.4	4.1	3.6
Operations	—	—	1.1	4.0
Laborers	—	—	2.4	1.8
Farm	(0.1)	0.6	(0.1)	0.4
Total	**11.9**	**15.2**	**13.9**	**17.6**

Total job open.ngs = 58.6 million
Percentage needing high educational requirements = 46%
Percentage needing low educational requirements = 54%

Source: Bill Honig, "Jobs and Education," *Education Week*, May 29, 1985, p. 23.

technological change, the shift from goods-to-service producing industries, or other factors, do not support the notion of bipolarization."[20]

Next, Rosenthal combined the effect of changes in relative wages and in occupational structure on the earnings distribution of workers over the 1972-1983 period. Table 4 indicates the results. More workers shifted from the bottom to the middle and top thirds, with the middle experiencing the greatest gain.

- *Future jobs will require more education, not less.* California State Superintendent of Public Instruction Bill Honig has studied the BLS projected job openings from 1982 to 1995 and argues that the workforce will need more, not less education. Honig aggregated the workforce into nine broad categories. He then used both newly created jobs and net job replacements to estimate the number of job openings by 1995. Next, Honig determined which jobs would require high or low levels of education and training. The results are listed in Table 5.

  According to Superintendent Honig's figures, 46 percent of the projected job openings by 1995 will require higher levels of academic preparation, skills normally associated with college. The trend is upward from 38 percent of jobs requiring such preparation in 1982. Future occupational opportunities are likely to favor the well-educated, concludes Honig.

The Good News Answer: A Leading Edge Economy?

The middle class may not vanish tomorrow. But technological innovations still will prompt significant change. Two developments in particular challenge the likelihood of maintaining a large pool of low-skilled, low-paying jobs: automation and shifting production overseas.

Automation may eliminate jobs entirely. For example, customers serve as their own tellers every time they withdraw money from an automated teller machine. Robots—the new class of steel-collar workers—now are replacing humans on parts of the automobile assemblyline.[21]

Shifting production overseas capitalizes on a cheaper labor pool in other countries. A Dallas firm now pays 200 data processors in

China $50 per month, and a New York company pays word processors in Barbados $1.50 per hour. The going hourly rate for these positions in the United States is $4 to $12.[22]

Faced with job obsolescence or competition at the low end of the employment base, how should the United States respond? Upgrade the job skills of the entire workforce, suggests Marc Tucker, executive director of the Carnegie Forum on Education and the Economy. Tucker argues that the United States should try to become "the leading edge supplier" to the world:

> The most promising strategy is for America to become a leading edge supplier of goods and services to the world. In the product realm, that means being the first to invent and exploit new materials and new energy sources, to figure out how to produce goods that consume much less energy in their operation, to incorporate unprecedented levels of intelligence in the things we make, to identify and meet the needs of new markets, to invent more attractive products at much lower prices for established markets.[23]

Capturing the market on providing desirable products unavailable elsewhere would support a highly paid labor force. According to Tucker, "The best prospects for this country lie in an economy based on innovation—technological, managerial, and institutional—on the application of new knowledge and creative ideas to human problems."[24]

This strategy has both positive and negative, or at least challenging, consequences. Becoming the leading edge supplier to the world would enable the United States to maintain a high standard of living. But it also would require a society always on the move. Once a new product has been in mass production for awhile, foresees Tucker, pressure to automate or shift production offshore would take hold. "It is not enough to get on the leading edge; we have to stay there."[25]

Good News and Bad News

Things may look upbeat for the economy as a whole. Employment is up. The middle class survives. High-level skills are in demand.

Yet technological change can be disruptive on an individual level, especially on the one whose job is lost.

In assessing the impact of technology on employment, former U.S. Secretary of Labor Ray Marshall concedes: "My main conclusion is that nobody knows what the net effect of new technology will be."[26] Nevertheless, Marshall does offer five subconclusions, which he feels "seem to be relatively certain":

(1) Technology will cause rapid changes, placing a premium on adaptable organizations, institutions, individuals, and policies.
(2) Technology can be slowed or accelerated, but it is unlikely to be stopped or deflected. Therefore, we should adjust our policies and institutions to technology rather than try to prevent it.
(3) Whatever the net effect of technology, considerable displacement is likely.
(4) It is hard to be optimistic about the long-run outlook for unemployment. BLS projections are based on overly optimistic economic growth forecasts and tend to ignore rising unemployment worldwide.
(5) Increasingly intensive domestic and international competition will continue. Therefore, productivity and quality output, along with flexibility, must be given more attention than in the past.

Implications for Education

In spite of their diametrically opposed visions of the future workforce, these policy analysts agree over the role of education in preparing future workers. The key words seem to be *flexibility, analytical skills, problem solving,* and *close education-work interaction.*

- Levin and Rumberger:

  The uncertainty about the future requirements of work also suggests that the best preparation should be general rather than specific education and training. Jobs as we know them today may be radically different in the future. And workers will probably change jobs with continued frequency. The best preparation for a changing work world is one that stresses flexibility and adaptability. Students will need to learn new, specific job skills throughout their working lives. This learning will take place at work, at home or in schools, and will require

communication, comprehension and analytic skills. These skills will enable today's students to learn new specific job skills and more importantly, to shape as well as adapt to a changing work environment.[27]

- Tucker:

  The rising concern over our education system is prompted—and justified— not by a decline in performance, but by education's failure to support the transition [to a leading edge economy].[28]

What is needed? Legions of very good problem solvers: people who, according to Tucker, can "figure out what they need to know, where to find it, and what to do with it when they get it."[29]

- Marshall:

  People become flexible and productive through education and training. . . . Human resource planning must be as systematic as other business planning. Indeed, education and training should be an integral component of business planning. Moreover, public-private training, education, and retraining must be better coordinated.[30]

Employers echo these sentiments. During 1983 and 1984, the Committee for Economic Development (CED) conducted an in-depth assessment of the employment needs of 438 large companies, including a random sample of Fortune 500 firms and 6,000 small companies. Manufacturing, retailing, banking, and services sectors were all represented. The questionnaire was designed to gauge employer expectations for four major categories of employees: office and clerical workers, sales and service workers, technicians, and semiskilled workers.

The results of the CED survey confirmed the following: "Specific occupational skills are less crucial for entry-level employment than a generally high level of literacy, responsible attitudes toward work, the ability to communicate well, and the ability to continue to learn."[31] Learning how to learn was ranked by small and large companies alike as the single most important attribute for advancement on the job.

Clearly, employers are placing a premium on the educational preparation of their prospective employees. And their prospective employees agree. When a national sample of fourth, fifth, and sixth graders was asked to respond to 10 possible goals of education, here is what they said: Eighty-seven percent believed that it is very important to "learn to think," the most frequent answer. When

asked to pick which specific educational goal is most important to them, becoming a person "who continues learning throughout life" topped the list.[32]

Notes

1. Dr. Janet Norwood, "Jobs in the 1980's and Beyond" (Washington, D.C.: Bureau of Labor Statistics, June 11, 1985).

2. George D. Stamas, "State and regional employment and unemployment in 1983," *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, September 1984), p. 9.

3. David L. Birch, "Job Creation in the U.S. and Other Western Nations in the 1980's," Subcommittee on Science, Research and Technology, U.S. House of Representatives, June 7, 1983, p. 6.

4. "President's Report on the State of Small Business," Fact Sheet, U.S. Small Business Administration, March 1984; U.S. Small Business Administration, *The State of Small Business: A Report of the President*, May 1985, p. 21.

5. Norwood, "Jobs in the 1980's," p. 5.

6. Birch, "Job Creation," p. 4.

7. H. N. Fullerton Jr. and J. Tschetter, "The 1995 labor force: A second look," *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, November 1983), pp. 3-10.

8. Henry M. Levin and Russell W. Rumberger, "The Educational Implications of High Technology," Paper presented to the Southern Regional Education Board, 1983, p. 8.

9. Ibid., p. 12.

10. Henry M. Levin and Russell W. Rumberger, "Forecasting the Impact of New Technologies of the Future Job Market," Institute for Research on Educational Finance and Governance, Stanford University, February 1984, p. 22.

11. *The New York Times*, September 4, 1983.

12. Cathy Henderson and Cecilia Ottinger, "Employment Prospects for College Graduates," American Council on Education, November 1984; Dave M. O'Neill and Peter Sepielli, *Education in the United States: 1940-1983*, Bureau of the Census, July 1985, p. 11.

13. Bob Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983, p. 70.

14. Barry Bluestone, Bennette Harrison, Lucy Gorham, *Storm Clouds on the Horizon* (Brookline, Mass.: Economic Education Project, May 1984), p. 34.

15. Neal H. Rosenthal, "The shrinking middle class: myth or reality?" *Monthly Labor Review* (Washington, D.C.: Bureau of Labor Statistics, March 1985), p. 6.

16. Norwood, "Jobs in the 1980's," p. 9.

17. Robert J. Samuelson, "The Myth of the Missing Middle," *Newsweek*, July 1, 1985.

18. Norwood, "Jobs in the 1980's," pp. 13-14.

19. Robert J. Samuelson, "Middle-Class Media Myth," *National Journal*, December 31, 1983, p. 2678.

20. Rosenthal, "The shrinking middle class," p. 4.

21. Marvin Cetron and Thomas O'Toole, "Careers with a Future," *The Futurist*, June 1982, p. 11.

22. Ray Marshall, "High Tech and Employment," for the Texas Lyceum Forum, Dallas, Tex., September 29, 1984, p. B-2.

23. Marc S. Tucker, "The Schools We Need But Never Had," Working Draft, Project on Information Technology and Education, March 5, 1984, p. 3.

24. Marc S. Tucker, "Technological change and adult learning: The labor market controversy and other conundrums," Draft, 1985, pp. 20-21.

25. Tucker, "The Schools We Need," p. 3.

26. Marshall, "High Tech and Employment," p. B-12.

27. Henry M. Levin and Russell W. Rumberger, "Choosing a Proactive Role for Education," Institute for Research on Educational Finance and Governance, Stanford University, Summer 1985, p. 4.

28. Tucker, "The Schools We Need," p. 4.

29. Ibid., p. 6.

30. Marshall, "High Tech and Employment," pp. B-14-B-15.

31. Committee for Economic Development, *Investing in Our Children*, New York, N.Y., 1985, p. 17.

32. Terry Borton, ed., *The Weekly Reader, National Survey on Education*, Survey conducted October 1985, p. 18.

III

The Role of Education in Business Location Decisions

"Logic dictates that business will not locate, be attracted to, or be able to remain in an area where there is a poorly skilled labor pool and that jobs will be lost or will fail to be created in these areas."

Committee for Economic Development,
Investing in Our Schools

"The general cost of doing business in a particular area, and the region's environmental and cultural amenities, are still important factors for companies when choosing a new location. 'But . . . the quality of the workforce and the caliber of the educational institutions are what employers look at the closest.'"

Stephen Moss, Arthur D. Little Co.,
as quoted in Ronald Rosenberg's article
"What Companies Look For," *High Technology Magazine,* January 1985

In 1983, Austin, Texas, became home to MCC (the Microelectronics and Computer Technology Corporation)—America's entry in the race with Japan to develop the next generation of computers. MCC's goal is to accelerate the development and use of technology to make U.S. firms more competitive. MCC is this country's largest joint research and development venture—representing 21 computer firms and costing $50 million a year.[1]

In 1985, Spring Hill, Tennessee, became the future home to General Motors' new Saturn plant, America's biggest and best shot at wresting control of the small car market from the Japanese. GM's success or failure also may determine the small-car production fate of the other big American automobile manufacturers.

Saturn will become the largest investment in U.S. history—costing General Motors $5 billion over the next six years, only $600,000 less than the 1985 budget of its new home state of Tennessee.[2] It also will create 6,000 new automotive jobs and an expected 20,000 new spinoff jobs.

Just what do these business location decisions have to do with education? Quite a bit, according to executives from both MCC and GM.

Bringing Computer Technology to Texas

Asked why MCC chose Austin over 56 other communities and Texas over 26 other states, Robert Rutishauser, MCC vice president for finance and administration, responded: "In particular, there was evidence of a high degree of cooperation between the business community, the state of Texas, and the universities in the area." Rutishauser explains further:

> When we started our site selection process, we developed a list of seven criteria. Five of these were those that you would find on almost any selection list. They included having a high quality of life so that we could attract and retain some of the most capable researchers in the country. Since about one-half of our technical staff have PhDs, usually in computer science or electrical engineering, it is probably obvious that high-quality education for their children was very important to them and in turn to us. Other criteria included a potential employee base in the community, an infrastructure of subcontractors and vendors, good access by air transportation and reasonable over-all cost of operation. In addition, we had two more criteria that were a bit

> unusual . . . (1) a supportive climate from state and local government, including a climate of cooperation between business, academic institutions, and government . . . and (2) ready access to educational centers of excellence: being close to a university which is a leader in basic research in computer technology and microelectronics.[3]

As evidence of public-private sector cooperation in Texas, Rutishauser points to the existence of a comprehensive state economic development plan, and the resources to fund it, as well as a commitment to fix weaknesses. On the latter point, he underscores the legislature's enactment of a major education reform bill in 1984, including a tax hike to pay for it. "From the standpoint of high-technology companies," adds Rutishauser, "this action further improves the attractiveness of Texas as a location for our industry."

To attract MCC within its borders, Texas also made a substantial commitment to upgrading the computer science and electrical engineering departments at the University of Texas, Austin, and at Texas A & M, including establishing the most generous program in the country for endowed chairs in electrical engineering and computer science. In turn, the universities granted MCC access to their research laboratories to ease the transfer of technology from campus to marketplace.

To other communities interested in participating in a high-tech future, Rutishauser advises: "The key is in the excellence of the universities in your area."

Bringing Compact Cars to Tennessee

General Motors will not say officially why Spring Hill, Tennessee, emerged the winner over 1,000 other local communities in 37 other states for its new Saturn plant. Yet here again, education appears to rank highly among the selection criteria. In a press conference announcing the decision, Saturn President William Hoglund cited repeatedly Tennessee's "long-term commitment to education."* In particular, GM was attracted by Tennessee's 1984 education reforms, built around a career ladder for teachers and school administrators. "The concept of paying for performance is one we at GM believe in," stressed Hoglund.[5] In addition, seven state technical colleges offer courses in robotics and automation, which will enable GM's prospective employees to move quickly into Saturn's high-tech operations.[6]

If GM is circumspect about sharing its reasons for choosing Tennessee, state officials are not at all shy. Full-page ads in *The Wall Street Journal* and *USA Today* sang Tennessee's praises thusly:

- Central location (particularly close to consumers GM considers most likely to buy Saturns; nearby Nashville is within one day's delivery time of 76 percent of the nation's car buyers);
- "Tennesseans still hold to yesterday's values and [people in] too many other places have lost them";

*Interestingly, Americans who invest in America seem to place a greater premium on education as an investment incentive than do their foreign counterparts. In 1985, Steven Williams and William Brinker, two professors at Tennessee Technological University, surveyed 27 foreign investors who had located their operations in Tennessee since 1969. The professors weighed the relative importance of various incentives that attracted foreign investment to their state. The presence of nonunion labor and favorable management relations were the two most important considerations, followed by transportation costs.

To determine the importance of education in attracting foreign investment, the survey contained items on the availability of technical training, vocational education, and consulting services. According to Williams and Brinker, "Few of our sample rated any of these services as extremely important, although Japanese firms uniformly rated Tennessee's educational services much higher than non-Japanese firms. . . . Most valued of these services was technical training." Conclude the professors, "The lowest-ranked factors that are influenced by state government policy were the presence of an educated and trained labor force. These results may indicate either that these factors are unimportant or that Tennessee is not perceived as providing a workforce superior to other states."[4]

- Low taxes, no payroll tax, and no unitary tax;
- Reduction in state debt by 24 percent in six years;
- "Only state to pay teachers more for teaching well, although 26 other states are following [this] lead";
- Invested $45 million in centers and chairs of excellence at universities;
- Right-to-work law.[7]

The Rest of the Country

MCC and Saturn represent the two most celebrated business location decisions in recent years. The high stakes of attracting these companies prompted intense lobbying campaigns on behalf of most states. Twenty-six governors sojourned to Detroit to present their case, with a stop for some on *The Phil Donahue Show.* Hundreds of citizens, ranging from noted sports figures to school children, bombarded GM with reasons why Saturn should grow to maturity in their communities. According to futurist consultants the Naisbitt Group, "Offers in the Saturn sweepstakes included free land, million dollar tax breaks, and an eager, low-cost work force. This billion dollar 'Let's Make a Deal' wasn't about building cars, it was about jobs, tax bases and diversification."[8]

Stripping away the hoopla, do the MCC and Saturn business location decisions really have much in common with others? Not all that much, according to several sources. For example, in 1983, the National Governors' Association (NGA) Task Force on Technological Innovation cautioned against getting caught up in the "great American high-technology sweepstakes of the 1980's":

> Most states are well aware of the limitations imposed by short-term strategies aimed at recruiting technology-based industrial firms. Not only are there but a finite number of firms to compete for, but also the competition itself is severe; no single state can hope to capture a significant number of these firms. States recognize, therefore, the importance of developing comprehensive strategies aimed, not just at near-term targets, but at long-term goals as well. In fact, a significant number of states are already well-along in their planning, development, and implementation of strategies geared to revitalizing existing industries and developing their state manpower, research and technological resource potentials over the medium and long-term. Thus the "sweepstakes" caricature seriously distorts the reality of current state initiatives.[9]

The governors' assertions are reinforced by the Congressional Office of Technology Assessment (OTA). In a 1984 study on high-technology development, OTA advised that "the greatest opportunities for most communities may lie in encouraging business development and technological innovation *throughout* the local economy, rather than simply attracting high-technology business from other regions."[10]

Massachusetts Institute of Technology Professor David Birch also provides evidence that the MCC and Saturn situations are atypical. Since 1969, M.I.T. has kept a file of 5.6 million business firms, approximately 80 percent of all business establishments in the country. After monitoring the location, sales, and employment levels of each firm every two years, Birch concludes:[11]

(1) *Virtually no businesses move their operations long distances.* There are many short moves but few moves from city to city. Birch was surprised at this finding, given the notoriety attached to those businesses abandoning the Frostbelt for the Sunbelt. M.I.T. discovered that, while firms may move capital (by investing differently in one location than in another), their movement of operations is insignificant.

(2) *The economy is in a constant state of flux.* What appears to be relatively slow change among all companies is, in fact, high turnover. Most U.S. communities lose about 8 percent of their jobs each year through employee layoffs or companies going out of business. Therefore, most communities must replace half of their job base every five years simply to break even over time.

(3) *The healthier the economy, the greater the turbulence.* Most communities lose jobs at a uniform rate. While the Bostons and Dallases lose proportionately more jobs each year than the Charlestons or Buffalos, they also replace lost jobs more quickly.

If most states are tending to encourage homegrown businesses and if most businesses are staying home, then how do companies decide where to expand and where to find new employees? Several sources offer insights about which states have put out the welcome mat to businesses, both big and small.

Rating the States for Manufacturing Companies

For the last eight years, Grant Thornton (formerly Alexander Grant & Co.) has evaluated the 48 contiguous states on their ability to provide a productive future environment for manufacturers. The Chicago-based accounting and management consultant firm defines manufacturing as "the mechanical or chemical transportation of materials or substances into new products, the assembly of manufactured products, or the blending of materials."

Grant Thornton uses 21 measurement factors selected by 41 state manufacturing associations representing 90,000 manufacturing companies across the country. Taken together, the factors purportedly indicate why manufacturers choose to locate where they do and whether their business will succeed. The factors fall into five general categories: (1) state and local government fiscal policies; (2) state-regulated employment costs; (3) labor costs; (4) availability and productivity of resources; and (5) selected quality-of-life issues, such as education, health care, cost of living, and transportation.

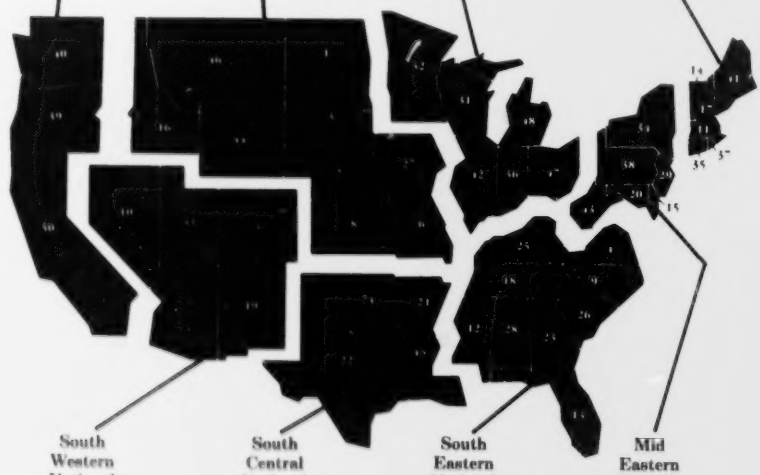
The combined results for 1986 (published in 1987) can be found in Figure 2, where Grant Thornton has ranked the states, from one to 48. The firm also divides the country into eight regions because neighboring states frequently show comparable geographic, economic, and working conditions and because only 20 to 30 percent of all manufacturing relocations occur over great distances.[12] According to Grant Thornton, North Dakota and the Southwestern region rank first, with Michigan and the Great Lakes region placing last. Grant Thornton's eighth annual report notes that manufacturers ranked the Great Lakes region, as well as the Mid Eastern and Western regions, at the bottom because of "wages, tax effort, energy costs, cost of living, and unionization."

Several years ago, Grant Thornton advised the study's audience not to make too much of its state-by-state comparisons: "Close results may inadvertently give an impression of greater differences between states than actually exist when ranking states from 1 to 48."[13] Instead, the surveys are intended as an initial step to highlight differences among states for businesses considering location, relocation, or expansion decisions. The authors emphasize the need for each business to base such decisions on requirements that may be unique to it.[14]

Grant Thornton's rankings tend to favor states with lower taxes, state expenditures, cost of living, union activity, salaries, and energy costs. For many years, education, as an inducement to manufacturers, ranked in the bottom half of the measurement factors. The two education factors also were defined narrowly as:

Figure 2.

1986 State Ranking with National Average and Scores by Region



Western National Average 36

	National Rank
California	30
Oregon	39
Washington	40

North Central National Average 17

	National Rank
North Dakota	1
Nebraska	2
South Dakota	3
Missouri	6
Kansas	8
Idaho	16
Iowa	27
Wyoming	44
Montana	46

Great Lakes National Average 39

	National Rank
Wisconsin	31
Minnesota	32
Indiana	36
Illinois	42
Ohio	47
Michigan	48

New England National Average 26

	National Rank
Massachusetts	11
Vermont	14
New Hampshire	17
Connecticut	35
Rhode Island	37
Maine	41

South Western National Average 15

	National Rank
Colorado	5
Arizona	7
Nevada	10
New Mexico	19
Utah	33

South Central National Average 28

	National Rank
Arkansas	21
Texas	22
Oklahoma	24
Louisiana	45

South Eastern National Average 18

	National Rank
Virginia	4
North Carolina	9
Mississippi	12
Florida	13
Tennessee	18
Georgia	23
Kentucky	25
South Carolina	26
Alabama	28

Mid Eastern National Average 30

	National Rank
Delaware	15
Maryland	20
New Jersey	29
New York	34
Pennsylvania	38
West Virginia	43

Source: Grant Thornton, *The eighth annual study of General Manufacturing Climates of the Forty-eight Contiguous States of America*, June 1987.

(1) the vocational education enrollment as a percentage of the workforce, to indicate a state's current and future ability to provide skilled workers; and (2) the percentage of high school graduates in the adult population, to indicate the availability of trainable workers in each state.

In 1987, Grant Thornton replaced these education factors with two, more broadly defined measures that now rank in the top one-third of all the factors. They are found in the set of variables the authors call "availability and productivity of resources" and "selected quality of life issues":

(1) *Available workforce*—defined as the "percentage of adults over 25 with 4 years high school education and with 4 years college education; the percentage of the labor force composed of engineers, scientists and workers employed in advanced technology industries; and the percentage of the total population that is employed." Grant Thornton uses this factor to indicate "the availability of a competent workforce which directly affects product quality and productivity." It ranks third of the 21 factors in importance.

(2) *Education*—defined as "average teachers' salaries; student/teacher ratio; high school graduation rate; state expenditures for public and higher education; and illiteracy rates." Grant Thornton uses this factor to indicate the "availability and quality of educational resources within a state." It ranks sixth of the 21 factors in importance. (As a point of reference, wages rank first, unionization second, change in wages fifth, change in taxes 15th, and debt growth versus personal income growth 21st.)

Table 6.

Grant Thornton Index of Available Workforce

Top 5 States	Overall Rank	Bottom 5 States	Overall Rank
1. Massachusetts	11	44. South Carolina	26
2. Connecticut	35	45. Mississippi	12
3. Vermont	14	46. Kentucky	25
4. Delaware	15	47. Arkansas	21
5 Washington	40	48. West Virginia	43

Source: Grant Thornton, *The eighth annual study of General Manufacturing Climates of the Forty-eight Contiguous States of America*, June 1987.

Table 6 lists the top five states and the bottom five states for 1986, in Grant Thornton's ranking of the category "available workforce." Table 7 does the same for the "education" category. Each states' overall ranking appears in the right column. Interestingly, with the exception of Delaware, there appears to be an inverse relationship between a state's overall ranking and its ranking on "education."*

Table 7.

Grant Thornton Index of Educational Resources

Top 5 States	Overall Rank	Bottom 5 States	Overall Rank
1. Wyoming	44	44. Mississippi	12
2. Oregon	39	45. Nevada	10
3. Montana	46	46. Georgia	23
4. Delaware	15	47. Florida	13
5. Washington	40	48. Tennessee	18

Source: Grant Thornton, *The eighth annual study of General Manufacturing Climates of the Forty-eight Contiguous States of America*, June 1987.

*By comparison, since 1976, *Business Week* periodically has surveyed 1,000 of its subscribers, top executives from manufacturing industries randomly selected to represent all areas of the country. The purpose of the survey is to identify those factors companies consider most important in selecting a new plant site. In 1984, of 55 possible responses, the top priority among manufacturers was "reasonable cost of property" (84 percent), followed by "trucking" (75 percent). Two education-related factors were in the middle of the list: "availability of labor with necessary skills" tied for 11th place with "access to utilities" (61 percent); and "adequate educational facilities in the area" came in 17th with 54 percent of the sample ranking it as important. Both factors had increased in importance since 1976.[15]

Rating the States for Small Businesses*

From October 1982 through October 1984, employment in industries dominated by small business grew by 11.4 percent, in contrast to the 5.3 percent growth experienced by large companies.[16] Reflective of its own interests, small business has come up with a way to gauge the variations in state friendliness, courtesy of *Inc.* magazine, which has provided its readers with an annual report card on the states since 1981. Like Grant Thornton, *Inc.* asserts that its purpose is less to rank the states than "to aid businesspeople and policymakers in their ongoing efforts to improve the climate for small businesses."[17] Also like Grant Thornton, *Inc.* stresses the improvements being made across states. Unlike the manufacturers' survey, *Inc.* contains information on all 50 states.

The top ranked states are located in different regions of the country than in the manufacturing survey. Grant Thornton's top 10 states in its latest report are found primarily in the North Central, the Southeast, and the Southwest. In contrast, eight of *Inc.*'s top 10 states in 1987 were on one of the two coasts. According to *Inc.*, the coastal states "are not simply rising on the tide. Their economic growth has strong underpinnings: a decades-long transition from heavy industry to service businesses, and a reliance on the commercialization of technology developed at top research universities."[18]

Until 1986, *Inc.* used one education-related factor among its 15 measurements, the percentage of workers older than 25 with a high school diploma. However, in 1986, *Inc.* totally revamped its ranking system to focus on outputs rather than on inputs. The latest survey, according to *Inc.*, measures each state's relative economic success over a four-year period in three areas: job generation, new-business creation, and young-company growth. Table 8 lists the results of the 1987 survey, which gives Arizona top honors and places Wyoming in the cellar.

Inc. releases its data during the year in which it is collected. Grant Thornton, however, has a one-year delay. For purposes of comparison, this chapter contains the latest available data from each survey, the 1987 *Inc.* survey (released in October 1987) and the 1986 Grant Thornton survey (released in June 1987).

Table 8.

State Rankings 1987: New Jobs, New Companies, and the Climate for Growth

1. Arizona	26. Maine
2. New Hampshire	27. Rhode Island
3. Maryland	28. New York
4. Georgia	29. Minnesota
5. Virginia	30. New Mexico
6. Florida	31. Missouri
7. Delaware	32. Pennsylvania
8. California	33. Oregon
9. Massachusetts	34. Kentucky
10. Nevada	35. Wisconsin
11. Tennessee	36. Illinois
12. Texas	37. Arkansas
13. North Carolina	38. Kansas
14. South Carolina	39. Alaska
15. Utah	40. Mississippi
16. Connecticut	41. West Virginia
17. New Jersey	42. Idaho
18. Vermont	43. Nebraska
19. Michigan	44. Louisiana
20. Hawaii	45. South Dakota
21. Alabama	46. Iowa
22. Colorado	47. Oklahoma
23. Ohio	48. Montana
24. Washington	49. North Dakota
25. Indiana	50. Wyoming

Source: Joshua Hyatt, "Coast to Coast," *Inc.* magazine, October 1987.

Debating the Ratings

Both Grant Thornton and *Inc.* offer disclaimers on using their surveys as state-by-state report cards. Nevertheless, aligning the states on a scale of 1 to 50 (or 48) prompts such comparisons. The results are predictable. According to *Inc.* editor George Gendron: "States that do well in our tables tend to trumpet the news . . . . Others drop the magazine in disgust and look to blame the messenger, not heed the message."[19]

Fair enough, but some analysts are beginning to challenge the ratings themselves. As the *National Journal* observes, "The media love them . . . but increasingly, the rankings are generating criticism that they are a simplistic, inaccurate and sometimes misleading way to display differences among the states."[20]

According to W. John Moore, writing in the *National Journal*, critics of the Grant Thornton study quarrel with its implicit policy recommendations—slash taxes, cut public spending, reduce wages, and shun unions. Others argue with the analysis behind the study. For example, the Corporation for Enterprise Development (CfED) faults the rankings for minimizing the real economic development occurring in states such as Massachusetts, Maryland, and Rhode Island, or in last-ranked Michigan, which has more manufacturing jobs than the top six states in the survey. South Dakota, ranked number one in 1985, actually lost jobs in that year, according to CfED. Other critics lambast the Grant Thornton rankings for slighting high-tech firms, which have provided half of the new jobs during the last 15 years and which value quality-of-life factors, such as good schools and universities.[21] In what may be the sharpest criticism of all, CfED began publishing its own state economic development report card in 1987, entitled *Making the Grade.*[22]

While critics take most of their shots at the Grant Thornton report, the *Inc.* survey does not escape unscathed. For example, in 1985, *State Policy Reports* criticized the *Inc.* survey for failing to measure realistically the degree of ease or difficulty encountered by small business in securing commercial loans. *Inc.* used the location of the lender only and not the borrower. As a result, in 1985, New Hampshire ranked well below the national average in providing small business loans, when capital was probably readily attainable from banks in nearby Boston. The same phenomenon applied for low-ranked Mississippi, when investors could secure loans from Mobile, Memphis, or New Orleans. Predicts *State Policy Reports*, "Many problems with rankings will disappear when companies begin ranking the economic development potential of states by the ability of their economic development personnel to pick reasonably accurate statistics."[23] Not so much kill the messenger, as clean up the message.

Where these surveys can be instructive, however, is in revealing to policymakers the factors that help different types of businesses decide where to locate and whether to expand. If business owners perceive that certain factors are critical to their future success, they are likely to act on their perceptions, regardless of the validity of the measurements.

The surveys also can help policymakers gauge their state's progress over time. For example, *Inc.* credits South Carolina with climbing a record-breaking 31 notches up its state-by-state rankings in 1984 and another five notches in 1985. The magazine applauds the efforts of every state in embracing at least one of the small business support and capital availability programs surveyed by *Inc.* And it praises states at both the high end and the low end of

the rankings. California, ranked number one in 1985, receives kudos for adopting "creative and innovative small business support systems of every kind." But West Virginia, ranked 50th the same year, also receives a good word for allocating part of its relatively scant resources to a new small business loan guarantee program.

Implications for Education

How important, then, is education in business location or expansion decisions? Information from the Grant Thornton and *Inc.* surveys leads to several observations:

(1) Education, which appears to be relatively unimportant in past business location decisions, may be becoming more important.

After eight years, Grant Thornton expanded its definition of education in 1987 beyond vocational education and high school graduation rates. The 1987 *Inc.* survey also acknowledges the importance of top research universities, in states such as Massachusetts and neighboring New Hampshire, California, and Georgia, in stimulating technological advancements.

The tendency to credit education with enhancing the business climate is also apparent in the descriptions accompanying the Grant Thornton and *Inc.* surveys. Here is a sampling from the eighth annual Grant Thornton report:

> In many ways, the *South Eastern* region is two different regions. Urban centers—new magnets for highly skilled, professional workers—are booming; rural areas remain depressed. The region's new mandate: revamp the education system.
>
> The *Mid Eastern* region's smokestack graveyards are slowly disappearing. Business/university partnerships continue to spawn progress in new technologies. So-called knowledge-based industries are driving this region's prosperity. As business expansion spreads to suburban corridors, concerns about quality of life—crowded highways and schools as well as soaring housing prices in sprawling high-tech areas—come to the forefront.

> The *Great Lakes* region is an example of how modern technology can revive—not replace—fading industries. While manufacturing unemployment remains high in some areas and the region's manufacturing climate has a long way to go, research programs between universities and manufacturers are helping to revitalize older industries.
>
> Education reform has taken on added urgency. *Louisiana* voters overwhelmingly approved a referendum to establish a $540-million trust fund for education. Such initiatives point to a shift in political winds, favoring education as the way out of economic distress.
>
> Booming high-technology industries and military contracts have created a need for skilled professionals [in *New England*]. But an employment problem remains—the region continues to feel the effects of a job market imbalance. If you're a low-skilled worker, it's becoming more and more difficult to make a living. Jobs are plentiful, however, in the service and professional sectors. For this reason, states are placing added emphasis on job training programs.

In 1987, *Inc.* also acknowledged the importance of education as follows:

> A quarter-century ago, companies looked for cheap labor, cheap power, and good transportation. *Physical* infrastructure was the key. Today, companies look for educated workers, excellent universities, entrepreneurial climates, and an attractive quality of life. Good roads and airports are still important, but *intellectual* infrastructure is the key.[24]

Thus, education has begun to figure more prominently in state-by-state comparisons. In view of the differences between the surveys and the criticism surrounding them, however, legislators and other policymakers are best advised to acknowledge their limitations when evaluating the strengths and weaknesses of each state.

(2) The impact of education on a state's economy is not easily quantifiable. Therefore, education's real importance to business location or expansion decisions may not be reflected adequately in these types of comparisons.

For example, only the Grant Thornton ranking attempts to evaluate selected quality-of-life factors—such as education, health care, cost of living, and transportation. *Inc.* took a stab at including quality-of-life factors in its original 1981 survey. (North Dakota, by the way, came in first.) The magazine's staff quickly abandoned the idea, however, after admitting that it was on relatively shaky ground. "Unlike the other rankings, for which it was possible to create fairly accurate models that evaluated various factors on the basis of their importance to small business . . . quality of life is something that is totally subjective."[25]

While *Inc.* no longer uses specific education factors (such as the proportion of the workforce with a high school diploma) to rank the states, the new system may prove even more beneficial to state policymakers. Basing a state's ranking on economic performance (job creation and business expansion) should give policymakers a way to measure directly the impact of their efforts in targeting their educational resources to economic growth.

A State-by-State Stress Test

While policymakers await the development of the definitive state ranking that links education and economic growth, they can turn to what is certainly a novel approach to comparing states. A team of sociologists at the University of New Hampshire has devised conceivably the ultimate state report card, a state stress index.[26] The professors ranked all 50 states based on 15 economic and domestic stress factors. They included business-related variables, such as the number of unemployment compensation claims and business failures. They also included macro-stresses (natural disasters, population changes) and micro-stresses (divorces, illegitimate births, abortions, school dropouts, and welfare recipients.) When the data were compiled, Nevada ranked as the most stressful state and South Dakota the least.

It is arguable whether the stress test actually captures each state's collective neurosis. But if it does, then MCC probably is experiencing mid-level stress in Texas, which ranked 19th. And Saturn can expect to find things less than totally copesetic in 7th ranked Tennessee.

These developments pushed the blood pressure of both states' policymakers even higher. In Texas, where MCC is counting on university brainpower, a state appropriation increase of 26.9 percent was allocated by the 1987 legislature. Before that action, there was significant reason for concern. A survey by the Council of Public University Presidents and Chancellors in Texas revealed

that at least 388 faculty members had resigned from public colleges and universities over an 18-month period. And at least 315 prospective faculty members declined university posts in Texas, including several endowed chairs. The state's money woes and the general fear that Texas no longer could support higher education were the reasons. "The word has gone out," grieved Lieutenant Governor William P. Hobby, Jr., "that Texas has turned its back on the future, and is marching toward oblivion."[27] Hobby and a coalition of business leaders became instrumental in turning Texas around through the increase passed in 1987.

Insuring that local residents will benefit from all the anticipated jobs is the most vexing issue surrounding Saturn these days, according to *The Wall Street Journal*. Under a management-labor contract, initial job offers must go to GM workers, who are located primarily outside Tennessee, a right-to-work state.[28]

Commenting one year later on the celebrated GM selection of Tennessee, *Inc.* notes:

> [Saturn] was the luxury liner everybody wanted, one of the flagships of America's new industrial fleet. . . . For eventual winner Tennessee, the loot is yet to be counted; like the *Titanic*, however, the great Saturn treasure hunt was really a relic of a bygone era. As much as states still covet grand vessels like Saturn, they have also learned that larger fleets and better shipyards add up to sounder insurance policies against stormy economic weather.[29]

The message is clear. Not all states will become home to an MCC or a Saturn. Nor should they even aspire to such goals. Yet every state can enhance its economic edge—by diversifying its economic base, by nurturing homegrown industries, and by targeting its unique resources, including education—toward building a comprehensive economic development strategy. Concludes *Inc.*, "What used to be thought of as social policies—education, welfare programs and the like—are being combined with purely economic policies, and the whole is greater than the parts."[30]

Notes

1. *USA Today*, October 2, 1985.
2. ABC *Nightline*, October 22, 1985.
3. Robert Rutishauser, Panel on Education and Economic Growth, Boston, NCSL annual meeting, July 26, 1984.
4. Steven D. Williams and William J. Brinker, "A Survey of Foreign Firms Recently Locating in Tennessee," *Growth and Change*, University of Kentucky, July 1985, pp. 54-63.

5. Mark Hornbeck, "GM says merit pay for teachers helped Tenn. win Saturn," *The Michigan Chronicle*, July 31, 1985.

6. "Will Nashville Become the Detroit of Dixie?" *US News and World Report*, August 12, 1985, p. 53.

7. As quoted in *State Policy Reports*, August 1985, p. 18.

8. Alexander Grant & Co., *The sixth annual study of General Manufacturing Climates of the Forty-eight Contiguous States of America*, June 1985, p. 12.

9. The National Governors' Association, *Technology and Growth*, October 1983, pp. 9-10.

10. Office of Technology Assessment, *Technology Innovation and Regional Economic Development*, Washington, D.C., July 1984, p. 4.

11. David L. Birch, "Job Creation in the U.S. and Other Western Nations in the 1980's," Subcommittee on Science Research and Technology, U.S. House of Representatives, June 7, 1983.

12. Grant, *General Manufacturing Climates*, June 1985, p. 37.

13. Ibid., p. 1.

14. Grant Thornton, *The seventh annual study of General Manufacturing Climates of the Forty-eight Contiguous States of America*, June 1986, p. 39.

15. *Business Week*, "Plant Site Selection: A Survey of Management Subscribers in Industry," 1984.

16. U.S. Small Business Administration, *The State of Small Business: A Report of the President*, May 1985, p. 2.

17. Neil Margolis, "Report on the States," *Inc.* magazine, October 1985, p. 90.

18. *Inc.* magazine, October 1987, p. 76.

19. *Inc.* magazine, October 1984, p. 7.

20. Jerry Hagstrom and Robert Guskind, "Playing the State Ranking Game—A New National Pastime Catches On," *National Journal*, June 30, 1984, p. 1268.

21. W. John Moore, "We're No. 1!" *National Journal*, November 8, 1986, p. 2743.

22. The Corporation for Enterprise Development, *Making the Grade*, Washington, D.C., March 1987.

23. *State Policy Reports*, October 15, 1984, p. 20.

24. David Osborne, "The New Role Models," *Inc.* magazine, October 1987, p. 78.

25. Kuldarshan Padda, "Report Card on the States," *Inc.* magazine, October 1981, p. 94.

26. Arnold Linsky, Murray Straus, and Ronet Bachman-Prehn, Department of Sociology and Anthropology and State and Regional Indicators Archive, University of New Hampshire, as reported in *USA Today*, February 6, 1987, p. 6A.

27. *Chronicle of Higher Education*, January 28, 1987, p. 11.

28. Dale D. Buss, "GM Saturn Venture Strives for Acceptance in Tennessee," *The Wall Street Journal*, November 25, 1986.

29. Joseph P. Kahn, "Growing Places," *Inc.* magazine, October 1986, p. 66.

30. Ibid.

IV

Look Who's Coming to School

"The nation's schools face the prospect of working with an increasing number of students from groups with whom they have been less successful."

National Governors' Association,
Time for Results

"By knowing who is entering the system, and how well they are progressing, everyone at all levels will have time to develop effective programs for the maximum education gains of all students."

Harold L. Hodgkinson, Institute for Educational Leadership,
All One System

Any business owner worth his or her profit margin, can ill afford to ignore changes in the product-buying public. Before investing millions of dollars in developing a new automobile or breakfast food, for example, General Motors and General Mills each scrutinizes the demographic characteristics of its target consumer group.

No less compelling an argument can be made for education policymakers to study the demographic characteristics of their target consumer group, the student. Responsible for investing

millions of dollars in education, policymakers must know the size, nature, and needs of the student population. They need to know who is most likely to appear at the schoolhouse door and, just as critically, who is least likely to appear.

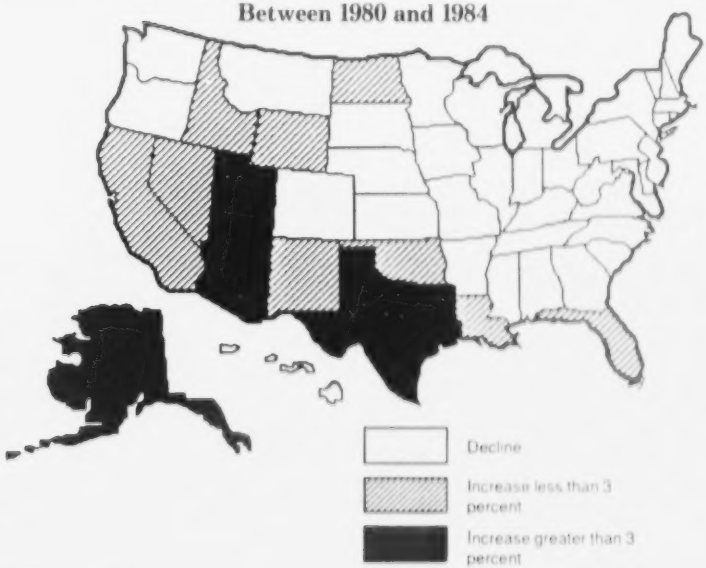
This chapter highlights changes in the growth and makeup of the future employment pool, the students. It raises several issues that state policymakers should expect to consider in designing education policies to meet the needs of this changing student population.

Student Population Trends

Most states are experiencing an increase in overall population, due in part to the so-called baby boom echo. Yet, as Figure 3 illustrates, the members of the baby boomlet are not distributed evenly across the country. All 13 states with increasing public school

Figure 3.

Change in Public School Enrollments Between 1980 and 1984



Source: Center for Education Statistics, *The Condition of Education*, 1986 (unpublished tabulations), p. 143.

enrollments, except for Florida, are located west of the Mississippi. On the other hand, the Northeast, the North Central states, and most of the Southeast face declining enrollments.

The recent population growth reverses the pattern of the 1970s when public school enrollments declined in 41 states and the District of Columbia.[1] In the last decade, most of the enrollment decline occurred in the primary grades. Only seven states displayed any growth in the elementary schools, while 28 states experienced gains in their secondary school enrollments.

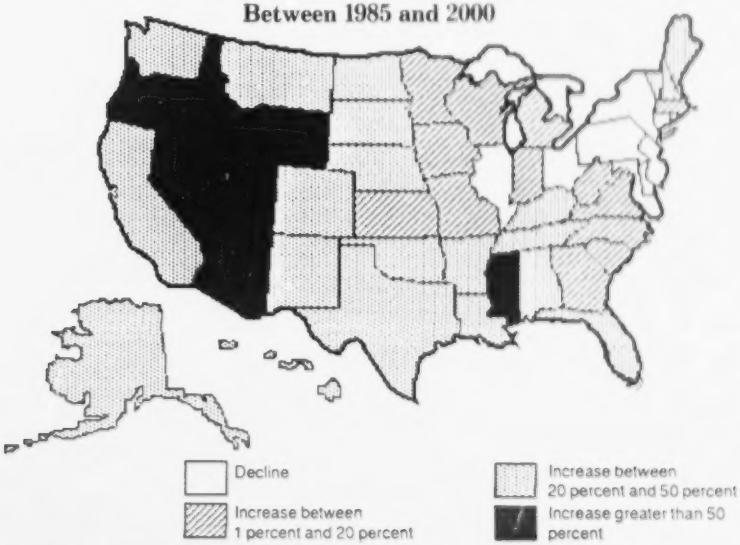
Projected School Enrollments

Most of the country is likely to experience an increase in school-age population by the year 2000, with Mississippi and the western states setting the pace. The only exceptions, as Figure 4 illustrates, are several states in the Northeast and Midwest.

The overall projected increase in school-age population hides a sharp contrast between primary and secondary school enrollment trends anticipated over the next decade. In contrast to declining

Figure 4.

Projected Change in School-Age Population Between 1985 and 2000


Decline
Increase between 1 percent and 20 percent
Increase between 20 percent and 50 percent
Increase greater than 50 percent

Source: Masnick and Pitkin, "Cohort Projections of School-Age Population for States and Regions: 1985 to 2000," Center for Education Statistics, *The Condition of Education*, 1986, p. 145.

elementary and secondary school enrollments experienced during the 1970s and early 1980s, preprimary enrollments increased substantially, by 19 percent between 1970 and 1980 and by another 20 percent between 1980 and 1985.[2] Demographers expect enrollment in the early grades to climb between 1986 and 1995. They anticipate secondary school enrollment, however, to continue the decline begun in the late 1970s. Between 1980 and 1985, high school enrollment dropped an estimated 6 percent and is projected to decline an additional 12 percent by 1990 but begin increasing again in 1991, as the new cohort of elementary students moves through the educational system.[3]

Current High School Graduation Rates

The percentage of high school graduates has increased significantly in all states during the last three decades. Prior to

Table 9.

High School Dropout Rates by State, 1982 and 1985

State	1985	1982	Rank	State	1985	1982	Rank
Alabama	37.0	36.6	44	Montana	17.1	21.3	8
Alaska	32.9	33.7	38	Nebraska	13.1	18.1	2
Arizona	35.5	36.6	40	Nevada	36.1	35.2	42
Arkansas	24.3	26.6	21	New Hampshire	24.8	23.0	22
California	34.2	39.9	39	New Jersey	22.7	24.5	13
Colorado	27.8	29.1	30	New Mexico	28.1	30.6	*31
Connecticut	19.6	29.4	10	New York	37.3	36.6	45
Delaware	30.1	31.8	35	North Carolina	29.7	32.9	34
Washington D.C.	45.2	47.2	50	North Dakota	13.9	16.1	4
Florida	38.8	39.8	49	Ohio	23.9	22.5	*18
Georgia	37.4	35.0	46	Oklahoma	28.9	29.2	33
Hawaii	26.2	25.1	26	Oregon	27.3	27.6	29
Idaho	23.3	26.6	15	Pennsylvania	22.8	24.0	14
Illinois	26.0	23.9	25	Rhode Island	32.4	27.3	37
Indiana	23.6	28.3	16	South Carolina	37.6	36.2	47
Iowa	13.5	15.9	3	South Dakota	14.9	17.3	5
Kansas	18.6	19.3	9	Tennessee	35.9	32.2	41
Kentucky	31.8	34.1	36	Texas	36.8	36.4	43
Louisiana	45.3	38.5	51	Utah	24.1	25.0	20
Maine	21.4	29.9	11	Vermont	16.6	20.4	7
Maryland	22.3	25.2	12	Virginia	26.3	26.2	27
Massachusetts	23.7	23.6	17	Washington	25.1	23.9	23
Michigan	28.1	28.4	*31	West Virginia	27.2	33.7	28
Minnesota	9.4	11.8	1	Wisconsin	16.0	16.9	6
Mississippi	38.2	38.7	48	Wyoming	25.7	27.6	24
Missouri	23.9	25.8	*18	U.S.	**29.4**	**30.3**	

*Indicates a tie

Source: U.S. Department of Education, as reported in *USA Today*, February 11, 1987.

World War II, only 38 percent of all young adults, aged 25 to 29, had earned a high school diploma. In 1940, the majority of young adults either were high school dropouts or had never gone beyond the elementary grades.[4]

This is no longer the case in the 1980s. According to the U.S. Department of Education, 29.4 percent of the students who entered high school four years earlier failed to graduate in 1985. The dropout rate reversed a three-year trend and climbed slightly in 1985. Seven thousand more students dropped out in 1985 than in 1984, still below the 30.3 percent rate recorded in 1982. Table 9 compares the dropout rate for each state in 1982 and 1985. Minnesota leads the nation in the percentage of high school students who graduate, and Louisiana has the highest dropout rate. Connecticut showed the biggest improvement over the three-year period.

Projected High School Graduation Rates

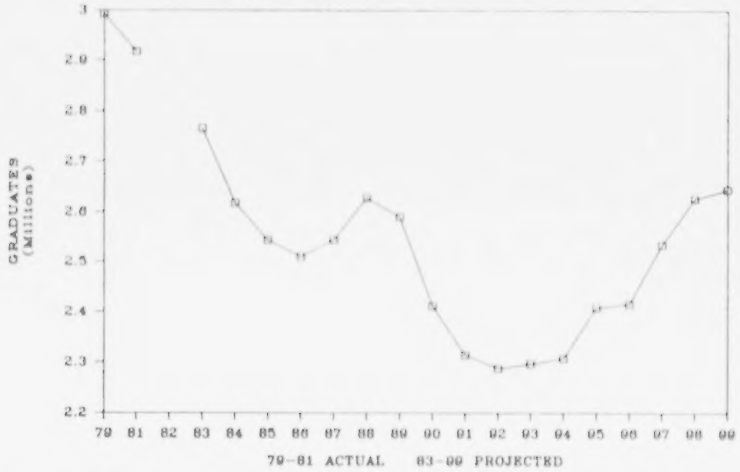
Based on demographic projections of birth rates and interstate migration, policymakers can expect to confront a roller coaster pattern in graduation rates for the rest of this century, as Figure 5 indicates.

Within this national pattern of high school graduation rates, there likely will be important variations across and within regions, as indicated in Figure 6. In 1984, McConnell and Kaufman outlined these trends as follows:[5]

- *Decline from 1981 to a low point in 1984-1987.* Most of the decreases are in the 10-20 percent range, but nearly one-fifth of the states are projected to experience declines greater than 20 percent. Several Western and Southern states are likely to see declines of less than 10 percent.
- *A brief rebound in 1988-1989.* The increase is projected to be strongest in the West and South, less so in the Northeast and North Central regions. There are also noticeable differences among states, ranging from 3 percent below the 1981 graduation rate in Vermont to 42 percent in the District of Columbia.
- *Bottoming out in 1990-1994.* Nationally, the decline in high school graduation rates is projected to be 22 percent below the 1981 level. Especially hard hit will be states in the Northeast and North Central regions, with Michigan projected to suffer the severest state decline, with a graduation rate 37 percent below 1981 and the overall severest decline, the District of Columbia at 49 percent.

Figure 5.

United States Projections
Total High School Graduates 1983-1999



Source: William R. McConnell and Norman Kaufman, *High School Graduates: Projections for the Fifty States (1982-2000)*, Western Interstate Commission for Higher Education, January 1984, p. 6.

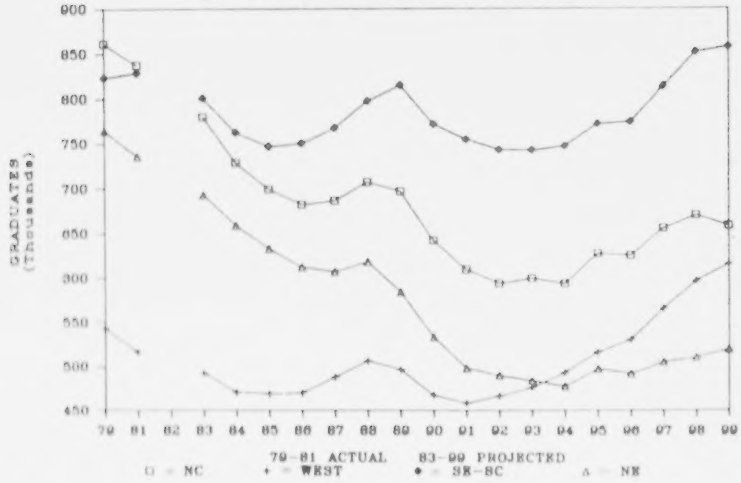
- *Increases to the end of the century.* All four regions are projected to recover from the 1991-1994 low points, but at differing rates. The northern states are projected to experience only a slight recovery by 1999-2000, still well below their graduation rates in 1981. In contrast, the southern and western states are expected to be above their 1981 rates by the turn of the century. The West will likely witness the sharpest upturn in its graduation rates, particularly in Alaska, Arizona, Colorado, Idaho, Nevada, Utah, and Wyoming. Only Hawaii and Montana can expect to see the number of high school graduates remain below the 1981 levels.

McConnell and Kaufman advise that:

> these variations [in high school graduation rates] among states and regions, as well as within regions, are important to educational planning. . . . This suggests that the

Figure 6.

Regional Projections
High School Graduates 1983-1999



Key to States Included in Each Region:

△ Northeast Region: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

□ North Central Region: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

◆ Southeast-South Central Region: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

\+ Western Region: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Source: William R. McConnell and Norman Kaufman, *High School Graduates: Projections for the Fifty States (1982-2000)*, Western Interstate Commission for Higher Education, January 1984, p. 6.

policies and practices employed by states and by institutions to deal with the initial 1984-87 downturn should vary in type as well as in degree of comprehensiveness.[6]

Populations Within the Student Population

In selecting education policies, state leaders need to know not only how many students will appear at the schoolhouse door but also what populations within this larger student population will be coming to school. The real challenge for policymakers then is to determine whether specific groups of students will differ in ways that affect their educational needs.

This task will not be easy. Just as enrollment projections vary by state and region, so, too, do the socioeconomic and cultural characteristics of different student populations.

Minority School Enrollment

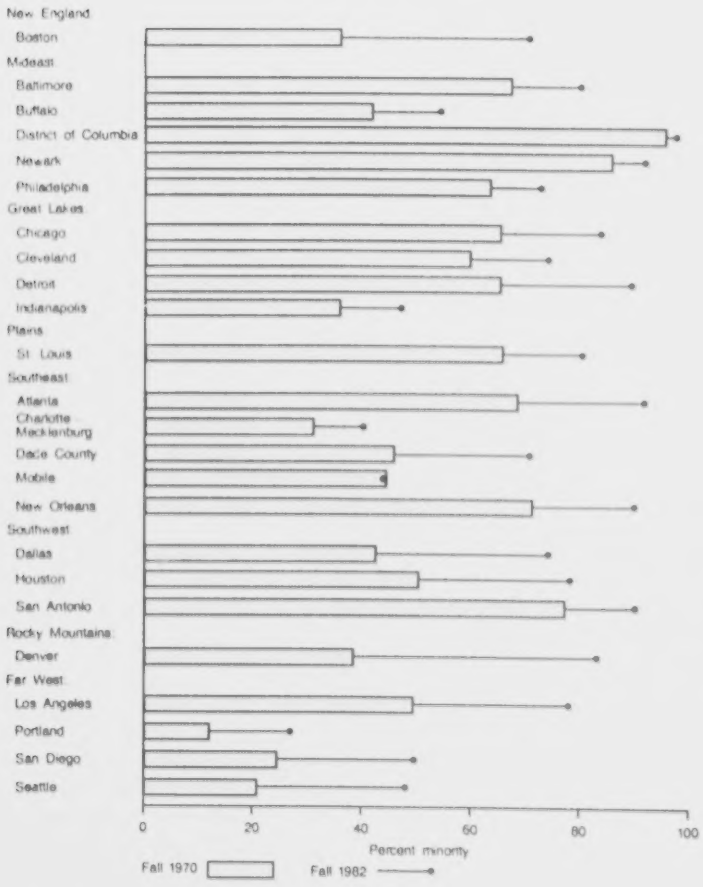
Since 1970, the proportion of minority students enrolled in many of the largest urban school districts has grown considerably. As Figure 7 illustrates, the percentage of minority students more than doubled from 1970 to 1982. Nationally, minority enrollment grew from 21 percent of total student enrollment in 1970 to 27 percent in 1980 to 28.8 percent in 1984.[7]

In all but two of the 25 largest school systems, more than half of the students come from minority groups. By 1982, four major cities—Atlanta, the District of Columbia, Newark, and San Antonio—had minority enrollments of more than 90 percent.[8] Fifty-three major American cities and California are projected to have "majority minority" populations by the turn of the century. As a result, members of minority groups nationally will become the majority group in urban America.[9]

When the population projections for black and Hispanic young adults are viewed separately, a distinctive regional pattern emerges. The significant black population growth during most of the 1980s is expected to occur east of the Mississippi River (Figure 8). Nearly all of the significant Hispanic population growth is likely to occur west of the Mississippi (Figure 9). Moreover, the birth rate of Hispanic young adults far exceeds the birth rate of either blacks or whites.[10]

Figure 7.

Minority Enrollment as Percentage of Total Enrollment in Selected Large Cities



Source: Center for Education Statistics, *The Condition of Education*, 1985, p. 27.

Figure 8.

State Comparisons of 18-24-Year-Old Projected Black Population, 1977-1988

Source: Policy Analysis Service, American Council on Education. Based on unpublished data from Survey of Income and Education, Center for Education Statistics, 1978, as presented in American Council on Education et al., *Demographic Imperatives: Implications for Education Policy*, September 1983, p. 8.

Figure 9.

State Comparisons of 18-24-Year-Old Projected Spanish-Origin Population, 1977-1988

Source: Policy Analysis Service, American Council on Education. Based on unpublished data from Survey of Income and Education, Center for Education Statistics, 1978, as presented in American Council on Education et al., *Demographic Imperatives: Implications for Education Policy*, September 1983, p. 9.

In addition, the United States is becoming increasingly multicultural because of in-migration. This country is experiencing the second largest immigration wave in U.S. history. Few of the new immigrants are from Europe. While large numbers of Hispanics continue to enter the country, 44 percent of the new immigrants come from Asian and Pacific Island countries. Of the 3.7 million Asian-Americans counted in the 1980 census, 60 percent were born in other countries.[11]

The Educational Consequences

Students from different racial or cultural backgrounds are often exposed to different educational experiences. For example:[12]

- Black and Hispanic students are underrepresented in academic programs and overrepresented in general or vocational educational programs where they receive less educational preparation in the basics, English, math, and science.
- Twenty-six percent of Hispanic high school seniors are enrolled in college-preparatory classes, compared with 32 percent of blacks, 39 percent of whites, and 52 percent of Asians.
- Black students are disproportionately more likely to be placed in special education classes and less likely to be in gifted programs than their white classmates. Hispanic children are the least likely group to be in gifted programs.
- Asian-American students are more likely to be placed in accelerated math and science programs; yet the growing in-migration from Indochina will likely increase the demand for bilingual education programs.[13]

The Center for Education Statistics (CES) has compiled a composite index of educational needs, by state, based on three items: (1) the percentage of students in poverty; (2) those served by programs for the handicapped; and/or (3) those children with limited-English proficiency. The composite measure of need, accordingly to CES, is a key indicator of special programs and services that the schools must provide. Table 10 and Figure 10 show the results, by state and region. Based on this composite index, the states whose students have the greatest educational needs generally are in the South and Southwest. States whose student populations have the

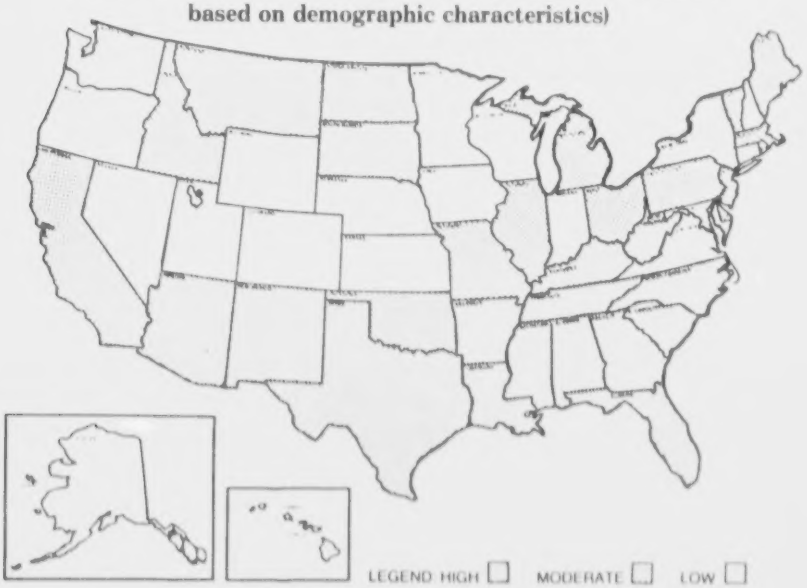
lowest educational needs, based on this index, are in the northern half of the mainland, in addition to Alaska and Hawaii.

High School Graduation Rates

The educational needs of special populations also can be seen in the differing school completion rates, by racial and ethnic groupings. A disproportionately high number of Hispanic and black youth leave school without diplomas, as Figure 11 indicates. Hispanic youth also drop out of school at earlier ages than do either white or black youth. Moreover, while graduation rates for whites and blacks were rising in the early and mid-1980s, they were declining for Hispanics.

Figure 10.

Index of Requirements for Special Educational Services
(A measure of relative need for special educational services based on demographic characteristics)



Source: Center for Education Statistics, *Indicators of Education Status and Trends*, January 1985, p. 41.

Table 10.

Composite Index of Educational Service Requirements

State and Region	Percent Children 5-17 in Poverty 1980	Percent Handicapped Children 1984	Limited-English Proficient 1980	Index of Educational Services Requirements	Classification on Index
United States	18.3	10.0	9.6		
New England					
Connecticut	10.4	13.7	3.1	9.3	Low
Maine	18.1	13.9	3.1	11.0	Moderate
Massachusetts	12.3	13.9	3.0	11.0	Moderate
New Hampshire	8.9	9.6	3.1	6.0	Low
Rhode Island	12.6	13.5	4.3	11.5	Moderate
Vermont	13.0	10.9	2.2	10.0	Moderate
Mideast					
Delaware	14.6	16.4	2.4	11.0	Moderate
District of Columbia	36.3	8.1	2.3	12.0	High
Maryland	11.9	13.3	2.2	8.0	Low
New Jersey	13.3	14.4	6.3	11.5	Moderate
New York	17.9	10.5	14.3	14.0	High
Pennsylvania	13.2	11.3	3.1	10.0	Moderate
Great Lakes					
Illinois	14.1	13.9	3.9	11.0	Moderate
Indiana	11.0	10.3	2.2	7.0	Low
Michigan	12.4	9.1	1.4	9.0	Moderate
Ohio	12.2	11.0	1.9	10.0	Moderate
Wisconsin	9.6	9.3	0.9	6.0	Low
Plains					
Iowa	10.8	11.4	1.9	8.0	Low
Kansas	10.7	10.6	1.8	7.0	Low
Minnesota	9.3	11.2	1.2	7.0	Low
Missouri	14.0	12.3	0.8	11.0	Moderate
Nebraska	11.6	11.4	2.0	8.0	Low
North Dakota	14.0	9.9	1.8	9.0	Moderate
South Dakota	19.4	9.6	1.2	12.0	High
Southeast					
Alabama	23.1	11.7	*	13.0	High
Arkansas	22.7	11.3	*	12.0	High
Florida	17.7	10.6	3.9	13.5	High
Georgia	3.3	10.4	1.0	12.0	High
Kentucky	21.2	11.5	*	13.0	High
Louisiana	23.1	10.9	3.0	13.5	High
Mississippi	30.4	11.0	*	12.0	High
North Carolina	17.8	11.2	*	12.0	High
South Carolina	30.7	12.0	*	13.0	High
Tennessee	20.2	12.6	*	13.0	High
Virginia	14.4	10.6	1.3	10.0	Moderate
West Virginia	10.2	11.3	*	13.0	High
Southwest					
Arizona	15.8	10.3	13.0	13.0	High
New Mexico	21.7	10.1	23.4	13.0	High
Oklahoma	15.1	11.1	2.6	10.0	Moderate
Texas	10.4	9.9	10.0	13.0	High
Rocky Mountains					
Colorado	10.8	8.4	6.3	6.5	Low
Idaho	13.4	8.7	2.7	9.0	Moderate
Montana	13.7	10.1	2.0	9.0	Moderate
Utah	9.8	10.9	2.2	7.0	Low
Wyoming	7.3	11.4	2.1	8.0	Low
Far West					
California	14.2	8.6	14.1	10.0	Moderate
Nevada	9.4	9.0	3.6	6.0	Low
Oregon	10.8	10.3	3.1	7.0	Low
Washington	10.3	9.1	3.2	6.0	Low
Alaska	11.4	11.3	6.7	7.5	Low
Hawaii	11.7	7.9	12.4	7.0	Low

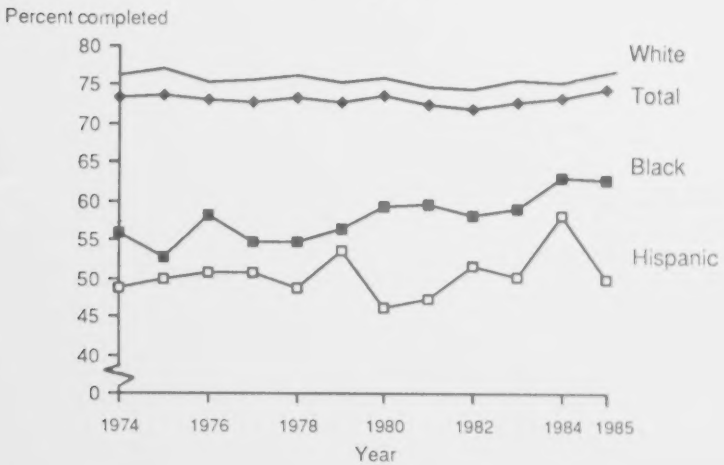
Source: Center for Education Statistics, *Indicators of Education Status and Trends*, January 1985, p. 40.

According to several federally sponsored studies of high school seniors undertaken between 1972 and 1982,[14] public school dropout rates also differ markedly according to region and type of community. Overall dropout rates were roughly one-third higher in the South and West than in the Northeast or North Central regions. For blacks, the rates were highest in the Northeast and North Central regions, while regional differences for Hispanics were small. Dropout rates were approximately one-third higher in urban communities (18 percent) than in either rural communities (14 percent) or suburban communities (13 percent).

For both white and Hispanic students, dropout rates tend to decline as socioeconomic status increases. No consistent trend exists for black students, however, whose dropout rates were significantly lower than those for white students in the poorest group.

Figure 11.

High School Completion Rates, by Race and Hispanic Origin, Persons Aged 18-19



Source: Center for Education Statistics, *The Condition of Education*, 1987, p. 27.

Other significant comparisons provided by the Center for Educational Statistics:

- Students in academic programs dropped out at lower rates (6 percent) than students in either general or vocational programs, 17 percent and 20 percent, respectively. This was true for male and female students, as well as for all racial and ethnic groups.
- Students with the lowest test scores as sophomores were six times more likely to drop out of school than students with the highest test scores.
- Dropout rates were approximately triple for students whose fathers had not graduated from high school (23 percent) as for students with parents who were college graduates (7 percent).
- Overall dropout rates for students with fathers in low-level occupations were two times greater than for students with fathers in high-level occupations.
- About 10 percent of the sophomores who had dropped out of school between 1980 and 1982 returned to school by the fall of 1982. Reentry rates were at least one-third higher in suburban and rural communities than in urban communities.

Figures 12 and 13 depict some of these comparisons.

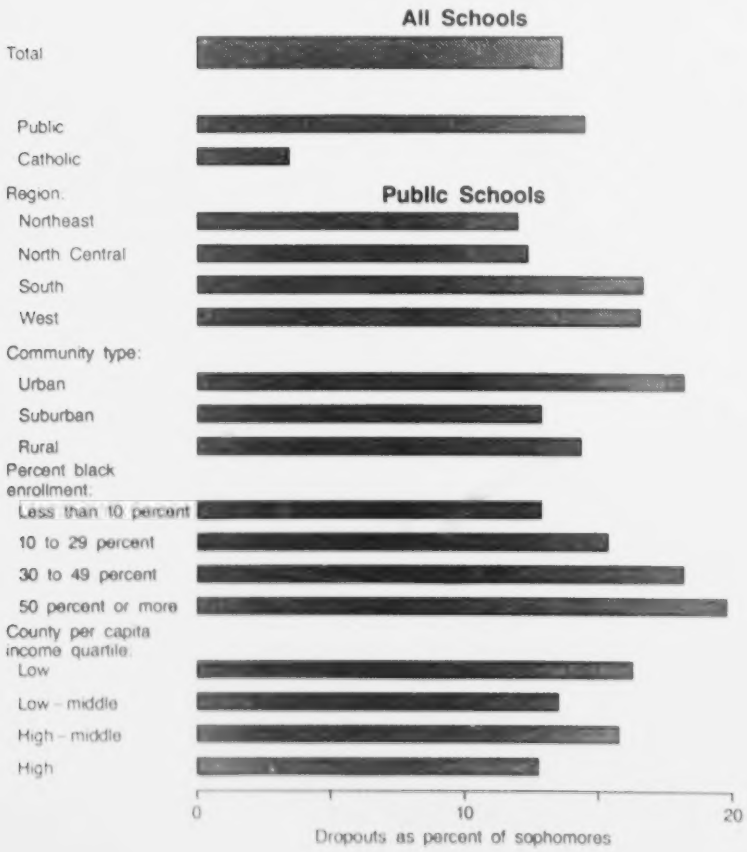
After High School

The educational system also offers different experiences for students from different racial and cultural backgrounds once they have earned their high school diplomas. To illustrate:[15]

- While high school graduation rates for blacks and Hispanics have improved dramatically over the last 20 years, college attendance and completion rates have declined for both groups since 1975.
- Sixty-one percent of white youth entering college eventually earn a degree, compared with 32 percent of Mexican Americans and 28 percent of Puerto Ricans. Blacks, with a 24 percent completion rate, are even less likely to earn a college diploma.
- The majority of Hispanic students (54 percent) is likely to attend two-year colleges, compared with 43 percent of black students and 36 percent of whites. Retention rates for two-year college students are significantly lower than for students at four-year institutions.

Figure 12.

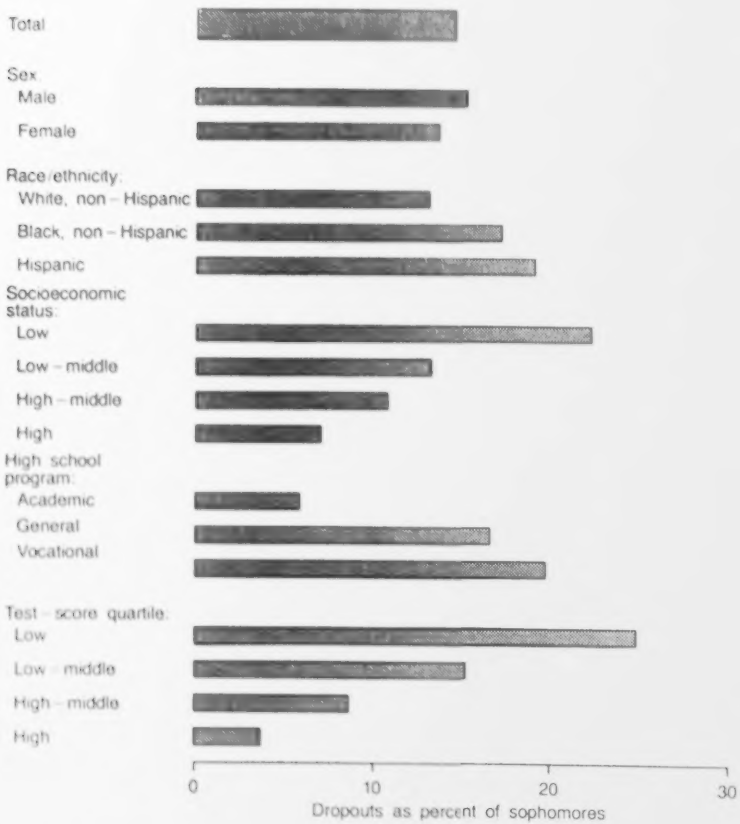
Dropout Rates of 1980 Public and Private High School Sophomores



Source: Center for Education Statistics, *The Condition of Education*, 1985, p. 209.

Figure 13.

Dropout Rates of 1980 Public High School Sophomores



Source: Center for Education Statistics, *The Condition of Education*, 1985, p. 211.

- Black students are underrepresented in graduate and professional schools, and black participation in postgraduate education has declined since the early 1970s.
- Black college students are nearly twice as likely to remain in four-year institutions if they receive financial assistance. In 1987, 48 percent of black college-bound seniors came from families with annual incomes under $12,000, compared with 10 percent of their white classmates. Since 1978, student financial aid has declined by 15.5 percent, increasing the costs to students and their parents. Between 1978 and 1983, the actual cost for Hispanic families rose by 22 percent, compared with increases of 12 percent for white families and 1 percent for black families.
- A high percentage of Asian-American youth graduate from high school and attend college. Because of their competence in math and the physical sciences, they represent a disproportionate share of all minority students at many of the flagship higher educational institutions.[16]

Figure 14 indicates the cumulative impact of participating in successive years of postsecondary education. According to a 1985 study sponsored by The College Board, "Minorities lose ground in comparison with their white counterparts at each successive stage of educational attainment—high school graduation, college entrance, college graduation, entrance into graduate school, and completion of graduate school."[17]

Other Trends in Higher Education

The college population also is beginning to change in other important respects—by size and age.

In 1983, postsecondary enrollment reached an all-time high of nearly 12.5 million. By 1993, however, the number of 18- to 24-year-olds is projected to drop by 18 percent. This decrease in the traditional college-age population (61 percent of all college students and 80 percent of all undergraduates in 1983) is projected to "have a profound effect"[18] on enrollment levels in higher education. As illustrated in Figure 15, student enrollment in four-year institutions is expected to decline significantly during the 1980s and into the 1990s, while attendance at two-year institutions is projected to decline slightly during the early 1990s. Moderate increases of older college students, over the age of 25, and part-time students are expected to cushion some of the loss of the traditional college-age students.[19]

Implications for Education

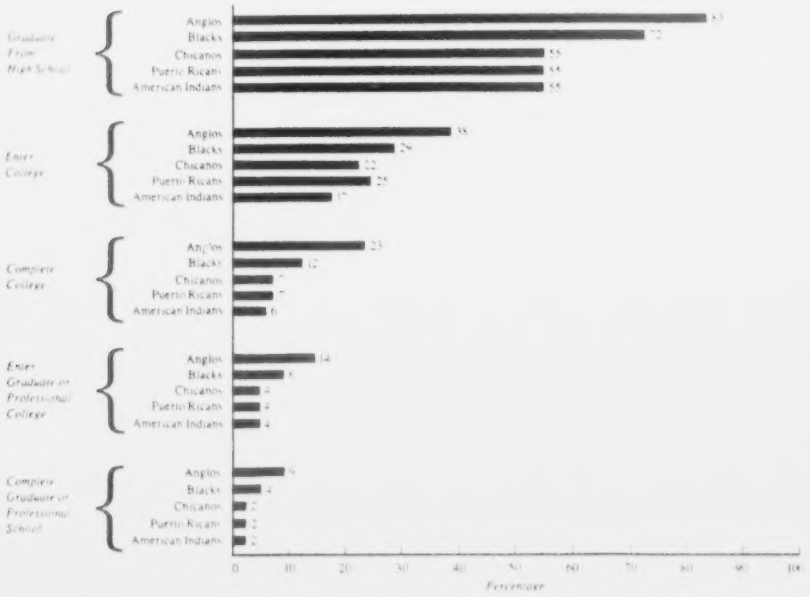
Based on these emerging demographic patterns, state policymakers can expect to encounter four givens that will define and affect the educational needs of their target consumer group, the student.

(1) *The roller coaster pattern of school enrollments defy simple and uniform solutions.*

Based on projections of student enrollment patterns for the immediate future, most policymakers will confront a greater demand for education in the early grades. High-growth states, such as Utah and California, are considering policies to reduce class size and

Figure 14.

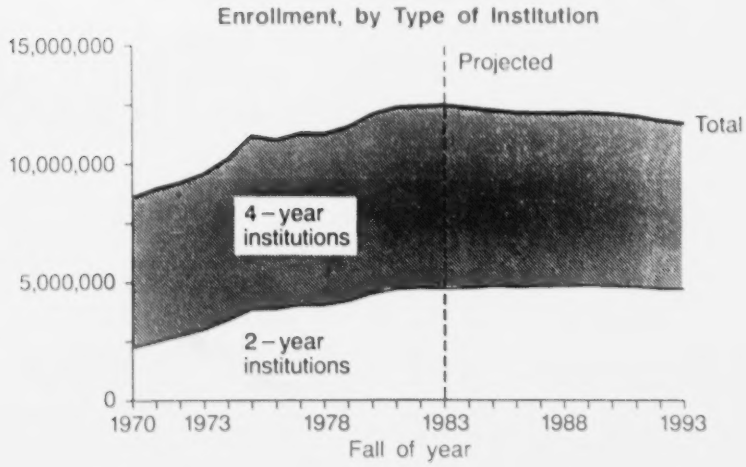
The Educational Pipeline in the United States



Source: Alexander Astin, *Minorities in American Higher Education* (San Francisco: Jossey-Bass, 1982) as quoted in Linda Darling-Hammond, *Equality and Excellence*, The College Board, 1985, p. 13.

Figure 15.

Projected Student Enrollment



Source: Center for Education Statistics, *The Condition of Education*, 1985, p. 99.

overcrowding of school buildings. The Los Angeles school district is keeping schools open year-round. Many other states that have closed elementary schools during the last decade may have to open them to accommodate the baby boomlet.

At the same time they provide more space for the youngest kids, policymakers may have to close underutilized junior and senior high schools. State leaders then can expect to reverse these policies once the mini-baby boomers reach puberty. Still other states must address the differing capital improvement needs within the same districts, as local boards of education close schools in some parts of the district while building them in other parts, to accommodate shifts in population.

The United States is a mobile society. Approximately half of all children between the ages of five and 14 changed their residency between 1975 and 1980, 10 percent of whom came from a different state. The percentage of out-of-state students ranged as high as 30.6 percent, however, in both Nevada and Wyoming.[20] Thus, policymakers must not only worry about the education provided to citizens in their own states but also be concerned about the job being performed by their colleagues across state lines.

Consequently, education policymakers will have to be nothing if not flexible. "An education policy that focuses on the needs laid

bare by demography will have to be more targeted and tailored than has been the case up to now,"[21] advises a forum of education organizations convened by the American Council on Education (ACE) to discuss the impact of population shifts on the schools.

(2) *Policymakers can expect to address educational needs of a more diverse group of students.*

The days of *Leave It to Beaver* are over except in reruns. In 1955, 60 percent of the nation's households conformed to the mold of the old television series—breadwinner Ward Cleaver, his housewife mate, June, and their two school-aged children, Wally and Beaver. By 1986, only 4 percent fit that mold.[22] Married couples with two or more school-aged children are now the exception rather than the rule.[23]

Today's students also confront a world far different from that portrayed in the television series. A study by the Business Advisory Commission of the Education Commission of the States cites some indicators of growing problems among today's youth (Figure 16).

Figure 16.

Indicators of Growing Youth Problems

Children in poverty	Up from 16% in 1970 to 22% in 1985. About 14 million children live in poverty. Almost half of black children and one-third of Hispanic children live in poverty
Drug and alcohol abuse	Up 60-fold since 1960
Teenage pregnancy	Up 109% for whites, 10% for nonwhites since 1960
Unmarried mothers	Up from less than 1% in 1970 to over 6% today
Female-headed households	Up from 12% in 1970 to 23% in 1984
Teenage homicide	Up more than 200% for whites, 16% for nonwhites since 1950
Teenage suicide	Up more than 150% since 1950
Teenage crime	Arrests up from 18% in 1960 to 34% in 1980 (18- to 24-year-olds)
Teenage unemployment	Up 35% for nonwhites, 60% for whites since 1961

Source: Education Commission of the States, *Reconnecting Youth*, October 1985, p. 17.

Although the numbers of the young adult population are declining, the at-risk segment of that population is growing. Cautions the Business Advisory Commission, "Assuming that the nation's economy continues to expand at a moderate pace, business will be forced to dip increasingly into the at-risk segment of the entry-level youth employment pool."[24]

The student population is becoming more heterogeneous—culturally, racially, and socioeconomically. The diversity defies adoption of simplistic education policies. Argues the same ACE-sponsored demographic forum, "A program that seeks to treat all alike will end up continuing to benefit some more than others and to leave still others with no benefits at all."[25]

Thus, the challenge for policymakers is to design educational programs that meet the needs of this complex student population. Concludes education policy analyst Harold L. Hodgkinson:

> What is coming toward the educational system is a group of children who will be poorer, more ethnically and linguistically diverse, and who will have more handicaps that will affect their learning. Most important, by around the year 2000, America will be a nation in which one of every *three* of us will be nonwhite. And minorities will cover a broader socioeconomic range than ever before, making simplistic treatment of their needs even less useful.[26]

(3) *Changing demographic patterns heighten the likelihood of generational conflict over scarce public resources.*

State leaders must not only be flexible in providing education programs for their school-age population, but on account of demographic variations and finite resources, they must also consider policies that may pit one generation against another. Already, demographers are noting a potential conflict in social policy between the very old and the very young:

- In 1970, an elderly person was more likely to be poor than a very young person. Today, a child is nearly six times as likely to be living in poverty than his or her grandparents.[27]
- In FY 1983, the 11 percent of the population that is elderly received 51 percent of all government spending—federal, state, and local—on social welfare programs. The remainder went to the nonelderly.[28]

- Between 1980 and 1984, some states (Alaska, Nevada, Utah, and Idaho) experienced increases in both their elementary school-age population and the percentage of their elderly population over the age of 65.[29]
- For the first time in history, the post-65 population outnumbers the teenage population.[30]

Scarce public resources are not the only bone of contention between children and adults their grandparents' age. Competition over the privilege of feeding hamburgers to a hungry public also may emerge, if recent advertising from McDonald's connotes a growing trend to hire senior citizens for minimum-wage jobs.

The intergenerational conflicts are not limited to the very old versus the very young. The baby boomers also could be competing for scarce educational resources with their own children. Lewis Perelman, for example, makes a strong argument for focusing state policies not on the education of children but on the learning of adults:

> Because of the aging of the baby-boom generation, over three-quarters of the American workforce at the beginning of the next century will be comprised of people who are already adults today. Demography alone will assure today's children of an increasingly favorable job market, as the demand for entry-level workers outstrips the supply. The human capital crisis that really is putting our nation at risk mainly centers on 50 million baby-boom generation adults whose careers are being derailed by the post-industrial revolution.[31]

(4) *Demographic realities are pushing policymakers to adopt new programs and strategies to improve education.*

When faced with a deficient or unpopular product, successful entrepreneurs will make changes to improve the product and/or to revise the marketing strategy.

Similarly, when *A Nation at Risk* and other national and state "excellence" reports focused on the public's dissatisfaction with education in 1983, state policymakers began to make changes. State after state enacted reforms designed to improve "the product," education.

Also at risk were outdated marketing strategies designed to build support for education, primarily among parents. To capture a larger share of public support, political leaders began to link the product—education—to state economic well-being. This strategy

was designed to attract the support of all residents, not just parents. Consider, for example, this assertion by the Task Force on Education for Economic Growth: "Mobilizing the education system to teach new skills, so that new generations reach the high general level of education on which sustained economic growth depends, will require new partnerships among all those who have a stake in education and economic growth."[32]

The realities of a changing student population also are pulling state policymakers in two directions at once. Public officials must look not only inward, to insure that policies are sufficiently flexible to meet the educational needs of the student population in their own states, but also over their shoulders at the educational efforts of colleagues in other states. The well-being of an aging white population—regardless of its home state—will depend on the employment skills of a younger generation, one that is increasingly diverse, both in its complexion and its expectations. The arguments for improving education still can be made convincingly on traditional grounds. Yet, despite their best efforts, policymakers may confront a public unaware of or unconcerned about the need to educate all students. Therefore, taking their cue from industry, policymakers are well advised to tailor their marketing strategy to the self-interest of their constituents. "If America wants its Social Security checks to keep being paid in coming years," asserts Queens College Professor Katherine Keough, "it had better ensure full opportunity and productivity for all working-age citizens, but most particularly minorities and women."[33]

The retired auto worker in Detroit does indeed have a vested interest in the high school graduation rates of young Hispanic males in Santa Fe and of young black females in Oakland.[34] It remains for state policymakers, however, to articulate the reasons why.

Notes

1. The figures contained in this section are taken from the Bureau of the Census, U.S. Department of Commerce, *State Population Estimates, by Age and Components of Change: 1980 to 1984*, Series P-25, No. 970, June 1985.

2. Center for Education Statistics, *Digest of Education Statistics 1987*, pp. 31-32.

3. Center for Education Statistics, *The Condition of Education*, 1987, p. 61.

4. Dave M. O'Neill and Peter Sepielli, *Education in the United States: 1940-1983*, Bureau of the Census, CDS-85-1, July 1985, p. 3.

5. William R. McConnell and Norman Kaufman, *High School Graduates: Projections for the Fifty States (1982-2000)*, Western Interstate Commission for Higher Education, January 1984, pp. 3-7.

6. Ibid., p. 7.

7. Center for Education Statistics, *The Condition of Education*, 1985, p. 4; and *The Condition of Education*, 1987, p. 64.

8. Center for Education Statistics, *The Condition of Education*, 1985, p. 4.

9. American Council on Education et al., *Demographic Imperatives: Implications for Educational Policy*, September 1983, p. 7.

10. Center for Education Statistics, *The Condition of Education*, 1985, p. 17.

11. Harold L. Hodgkinson, *All One System*, Institute for Educational Leadership, June 1983, p. 7.; "Demographic Digest," 1983; American Council on Education et al., *Demographic Imperatives*, p. 10.

12. These figures are taken from two sources: Linda Darling-Hammond, *Equality and Excellence, The Educational Status of Black Americans*, The College Board, 1985; and National Council of LA RAZA, Office of Research, Advocacy and Legislation, *The Education of Hispanics: Selected Statistics*, July 1985.

13. Hodgkinson, *All One System*, p. 7.

14. *The National Longitudinal Study of the High School Class of 1972 and Beyond 1980 and 1982*, as reported in Center for Education Statistics, *The Condition of Education*, 1985, pp. 201-203.

15. Linda Darling-Hammond, *Equality and Excellence*, pp. 1-2; National Council of LA RAZA, *The Education of Hispanics*, pp. 29-31.

16. Hodgkinson, *All One System*, p. 7.

17. Linda Darling-Hammond, *Equality and Excellence*, p. 14.

18. Center for Education Statistics, *The Condition of Education*, 1985, p. 77.

19. Ibid., p. 78.

20. Center for Education Statistics, *The Condition of Education*, 1986, p. 74.

21. American Council on Education et al., *Demographic Imperatives*, p. 20.

22. Harold Hodgkinson, as quoted in *Education Week*, May 14, 1986, p. 32.

23. Katherine E. Keough, *Scenario 2000: Intercepting the Future*, National Association of State Boards of Education, 1986, pp. 8-9.

24. Business Advisory Commission, Education Commission of the States, *Reconnecting Youth*, October 1985, p. 17.

25. American Council on Education et al., *Demographic Imperatives*, p. 20.

26. Hodgkinson, *All One System*, p. 7.

27. Paul Taylor, *The Washington Post*, January 5, 1986.

28. Ibid.

29. U.S. Bureau of the Census, *State Population Estimates by Age and Components of Change 1980 to 1984*, June 1985, p. 4.; Center for Education Statistics, *The Condition of Education*, 1985.

30. American Council on Education et al., *Demographic Imperatives*, p. 4.

31. Lewis J. Perelman, "Safety Lines vs. Safety Nets: Why M*A*D*M*U*P*S Need H*E*L*P," Discussion paper for the National Conference of State Legislatures, September 1985, p. 13.

32. Education Commission of the States, Task Force on Education for Economic Growth, *Action for Excellence*, June 1983, p. 9.

33. Keough, *Scenario 2000*, p. 1.

34. Idea borrowed from the American Council on Education et al., *Demographic Imperatives*, Foreword.

V

Do Education/Economic Growth Linkages Exist?

"A rose is a rose is a rose."

"There's no there there."

Gertrude Stein

When Gertrude Stein penned these now-familiar lines, she obviously was not commenting on education or economic growth. But she just as easily could have been. Nationwide, political leaders have adopted a rose is a rose is a rose strategy, embracing a multitude of education initiatives, all in the name of making their states more economically competitive and productive. Less certain have been their efforts to determine just how improving education and, specifically, which education policies will upgrade the economy. Unlike the city of Oakland in Stein's second quote, we simply do not know yet much about the "there" that is or is not there.

Several valid reasons exist for this uncertainty. First, it is simply too early to tell what the impact of these programs has been. Many of the state education and economic development reforms represent long-term investments. They take time not only to implement but also to take root and produce results.

Second, while state policymakers eagerly are making a run for the roses by adopting a range of education reforms, they have spent far less time in figuring out just how to measure success or failure. Recent state initiatives have had enormous range—from funding new opportunities for three- and four-year-olds to establishing endowed research chairs at universities; from concentrating on improving basic skills to mastering higher-order skills; from rethinking the purpose of vocational education to upgrading job training programs; from reducing the numbers of students who drop out of the schools to expanding student and parental choices within the schools; from upgrading the professional lives of teachers and administrators to counseling noneducators to participate in decisions affecting the schools. Figuring out the specific impact of each of these programs, no less their cumulative contribution to state economic growth, is proving to be a monumental task.

Third, despite the universal rhetoric connecting educational improvements to economic growth, many of the recent initiatives often have come from different camps, each with their own set of priorities, expectations, terminology, and allies. Three recent studies amply illustrate this last point.

The View from Education

A survey compiled by the Council of Chief State School Officers (CCSSO) points out the difficulties in getting a handle on the key issues.[1] During 1986, the council contacted state departments of education across the country in search of education programs enacted in the name of economic development. All 50 states, three territories, and the District of Columbia responded. Here is what the council found (the state-by-state comparisons are contained in the Appendix):

- Only nine departments of education have their own economic development policies, related primarily to vocational and career education.
- Forty-six states and territories have an economic development policy. Education officials are involved to

varying degrees, if at all, primarily through general meetings, written state plans, interagency work groups, and/or membership in the governor's cabinet or subcabinet groups.

- Most states provide a formal mechanism for education policymakers to talk with each other. Forty-five states and territories maintain a forum for policy discussions within the education community at the state level.
- Fewer states provide educators with a formal role on general money issues. Boards or departments of education in 28 states and territories provide formal input into policy decisions on raising state revenues.

Most of the states and territories have curriculum standards that require the offering of courses related to the economy. Far fewer states require students to take the courses. These include:

	Number of States	
Course	Courses Must Be Offered	Courses Must Be Taken
The economy	39	24
Productivity	29	11
International education	25	7
Work ethic	24	8
Entrepreneurship	31	8
Career exploration	41	15

- Departments of education in 35 states and territories maintain statewide job market data, often in cooperation with other state agencies.
- Thirty-seven states and territories provide employee retraining programs for firms expanding in or relocating within their boundaries. Of these, 27 departments of education receive funds for retraining. Fewer departments (21) provide technical assistance to businesses on applying new technology.
- Nearly every state and territory (53) cooperate to coordinate programs between secondary, vocational, and postsecondary technical education.

Education policymakers and administrators typically feel more at home deciding the fate of education issues such as governance and reorganization, curriculum, teacher quantity and quality, and assessment. Increasingly, these issues are being considered in light of demographic changes and economic policies. Educators, therefore, need to have greater input into policy decisions involving

the economy. Yet, asserts the council, "While state departments of education have policies on vocational and career education, they are generally not actively involved in state-level policy decisions on revenues and other economic issues."[2]

Based on its survey, the CCSSO concludes that:

- State departments of education should adopt policies on economic development;
- Education should have input into state-level economic policy;
- States should require students to study areas related to economics;
- States should examine cooperation efforts between secondary vocational and postsecondary technical programs and interagency collaboration to collect job market data.

The View from Economic Development

The National Governors' Association conducted a year-long study of state economic development policies and programs, relying on the input of governors' staff or directors of state development agencies in all 50 states. The purpose of the study was "to provide an initial overview of state-administered economic development activity."[3]

Respondents to the NGA survey identified five specific program areas to their state economic development initiatives, often organized around the type of businesses being assisted. These include: (1) industrial development, both for existing industries and to attract new industries; (2) tourism promotion; (3) technology development (40 states); (4) small business development (50 states; a priority in 19 states); and (5) international trade (45 states), including attracting foreign businesses and providing export assistance to local firms.*

What role has education played in these programs? Despite the flurry of state activity to improve education that has swept the country since late 1982, only nine respondents to the NGA survey identified education as a major economic issue facing their states.

*The NGA study concentrated primarily on more recent economic development initiatives. Therefore, it contains information on the number of states with technology development, small business development, and/or international trade programs, but not with the older programs for industrial development and/or tourism promotion.

Twenty respondents indicated that their states were using education initiatives to support economic growth, as indicated in Table 11.

Contacts with legislative staff who work on economic development issues turn up a closer linkage between education and economic growth policies. Of 46 states responding to an NCSL survey, 27 acknowledged using economic development arguments to fuel their education reforms from 1981 through 1986. Eight states anticipated joining this debate during 1987.[4] These states are listed in Table 12.

Of course, states have been in the business of targeting their job training efforts to meet the needs of industry for years, spurred on by federal programs such as CETA (the Comprehensive Employment and Training Act) and now JTPA (the Job Training Partnership Act). According to an earlier NGA survey, 41 states report operating training programs for new and existing industries. What distinguishes the latest efforts to connect education and economic growth, however, is the involvement of postsecondary educational institutions.

Higher Education and Economic Growth

Much has been written recently about the efforts of postsecondary educational institutions to tailor their programs and services to enhancing economic development, especially in the area of emerging technology.[5] When asked in the NCSL economic development survey which agencies and other organizations within their state government have been active on economic development matters, 35 states checked state colleges and universities.

The postsecondary educational institutions have not shied away from accepting this expanded mission. In a 1985 survey conducted by the American Association of State Colleges and Universities (AASCU), 98 percent of public institutions of higher education acknowledged new demands to pursue economic development activities. Of these 300 institutions, 97 percent planned to increase their efforts. Notes the AASCU study:

> New relationships are being forged with government and industry. New degree programs are being instituted to meet industry's needs. Centers of excellence are being established in areas considered critical to a state's economy. Joint research programs are being initiated. Schools of engineering and science are expanding. Technology transfer programs and small business incubators

Table 11.

Education Policies Proposed as Part of State Economic Development Policy

Type of Policy or Action	Number of States Responding*
Basic Education Reform Packages	
Enacted	5
Proposed	2
Additional Funding for Education	
General	2
Funding for Economic Development-Related Projects	2
Vocational-Technical Educational	
Reform	4
Additional Funding	4
University Support	4
Funding for Equipment	5
Assistance to Students	1

*Includes multiple answers from 20 states.

Source: Marianne K. Clarke, *Revitalizing State Economics,* National Governors' Association, 1986, p. 12.

Table 12.

States Reporting Using Economic Growth to Push for Education Reforms

1981-86		Anticipated Action in 1987
Alabama	New Mexico	Arizona
Arizona	New York	Hawaii
Arkansas	North Carolina	Illinois
Connecticut	Oklahoma	North Carolina
Hawaii	Pennsylvania	Oklahoma
Illinois	Rhode Island	Texas
Kentucky	South Carolina	Utah
Louisiana	South Dakota	West Virginia
Maine	Tennessee	
Massachusetts	Texas	
Minnesota	Utah	
Mississippi	West Virginia	
Missouri	Wisconsin	
Montana		

Source: Dan Pilcher, "1986 State Economic Development Survey Results," National Conference of State Legislatures, Denver, Colorado, January 2, 1986, p. 8. (Responses not received from California, Colorado, Michigan, and New Hampshire.)

are proliferating. New economic research institutes are emerging. And much more is going on, all in the name of economic development.[6]

Table 13 contains the seven broad categories to describe the spectrum of new university roles in economic development, found in the AASCU survey.

A great deal of effort has gone into counting, classifying, and charting the types of ongoing education-economic growth policies. Much less, however, is known about their success. Not that efforts to gauge success are not being made. The AASCU survey, for example, identifies 10 key factors that will affect the success of a higher educational institution's role in economic development:[7]

(1) Entrepreneurial leadership, particularly the role of the university president in developing relations within the community and with local industry.
(2) A clear institutional mission that supports or complements involvement in economic development.
(3) Well-defined and understood community and industry needs.
(4) The ability to match institutional university capacity to the needs of the service area, ranging from conducting research on advanced technology to providing technical assistance to small business.
(5) A strategic location, proximity to industry and to other universities.
(6) Strong working relationships with the public and private sectors.
(7) The availability of special resources, such as federal research dollars and programs and state-sponsored centers of excellence.
(8) An institutional culture that recognizes the importance of economic development.
(9) A policy climate that supports involvement, including incentives for faculty and staff.
(10) Special organizational arrangements to facilitate communications between universities and industry, promote interdisciplinary cooperation on campus, and free the institution from state bureaucratic constraints.

Identifying characteristics of successful ventures is only the first step in assessing their impact on the economy. Notes the National Governors' Association study of state economic programs: "The [state] responses are indicative of the problems encountered in trying to evaluate the success of development programs. The

first difficulty is in trying to find a causal relationship between economic development programs and changes in the economy."[8] The study concedes, "Hard data documenting job generation results is scant. Evaluation tools are sparsely used and the result is that currently it is difficult to assess what works best."[9]

The NCSL economic development survey confirms this finding. Only 12 states reported that a performance audit or program evaluation had been conducted of any of the state economic development initiatives, including those involving education. Notes Dan Pilcher, the author of the survey:

> Most innovative state economic development initiatives have come within the last four to five years, although some states, such as Massachusetts and Connecticut,

Table 13.

The Spectrum of College and University Roles in Economic Development

Economic Objective	College and University Roles	Examples	Possible Economic Benefits	Possible Institutional Benefit	Some Potential Concerns
Human resources development	New education programs Continuing education Professional development Extension programs	Arizona State Center for Eng. Excellence George Mason Institute of Science & Tech.	Skilled workers Means of updating skills Lifelong learning	New students New programs Revitalized curricula Increased responsiveness	Misreading labor market Vocational orientation Inflexible programs Need to cut some programs
Economic research and analyses	Economic data gathering Economic base analysis Industry analysis Strategy development	Cleveland State College of Urban Affairs Eastern Oregon State Regional Services Institute	Better information Improved decisions Effective strategies	Public service mission Community image Student opportunities	Needs not well understood Government–academia conflicts Involvement in local politics Work seen as too academic
Capacity building	Training Technical assistance Building partnerships	Univ. of Colorado–Denver P/P Center Western Carolina WNCT Tri-State Conference	New local capacity New partnerships	Public service activity Community support Tops faculty skills	Lack of ties to community groups Needs not well understood Involvement in local politics Work seen as too academic
Technical assistance	Small bus dev. centers Productivity centers Industrial extension Faculty consulting	Georgia Tech Industrial Extension Service University of Alabama GM UT–San Antonio CED	Aid to new and small business Knowledge of mgt. and eng. tools	New business support Research opportunities Consulting opportunities Student experiences	Drain on faculty time Not seen as prestigious Faculty resistance Lack of special resources
Research	Centers of excellence Research consortia Cooperative research Industrial affiliates	University of Akron EPIC University of Cal MICRO Michigan State Biotech Center	Technical edge New production processes New products and services	National visibility New research revenues Understanding of needs Access to labs, equipt.	Politicization of research Conflicts of interest Threats to academic freedom Economic pay-offs are long-term Undergrad. education may be hurt
Technology transfer	Tech. transfer programs Shared equipt. facilities Faculty consulting Sabbaticals	Ben Franklin Partnership Washington Research Foundation Michigan Industrial Technology Institute	Access to technology	New revenues (royalties) Feedback to classroom Student learning Tops technology base	Lack of industry linkages Faculty resistance Competition with private firms Lack of organizational vehicle Academic/industry conflicts
New business development	Incubators Research park Financing program Enterpreneurship	Utah Innovation Center Texas A&M INVENT Ohio University	New start-up firms New jobs Increased tax base	New revenues (equity) Faculty income Improved industry ties	Lack of strong research base Requires supportive services Restrictive regulations Detracting from teaching tips Replicating inappropriate models

Source: *The Higher Education-Economic Development Connection*, American Association of State Colleges and Universities, 1986, p. 11.

> launched their efforts in the mid-1970s. Despite this flurry of state activity, evaluation of these programs appears to have lagged. Reasons for this may include lack of rigorous evaluation provisions being included in the enabling legislation; a too-ready acceptance by state policymakers of the need for economic development initiatives because of state economic distress and, consequently, a less pressing need for immediate evaluation; the fact that many programs have only been operational for a few years; and factors related to methodology.[10]

Thus, the greatest problem for state policymakers will be determining the impact of their efforts to link education and economic growth. In describing the enormity of the task, a study of state higher education/economic development policies concludes:

> If one wants to find out about the health of a publicly traded company, a wide array of financial reports are available from reliable, independent investment services such as Standard and Poor's, Moody's and Value Line. To find out how a favorite major league baseball team is doing, simply open up the sports page to reams of statistics about the performance of the team, each one of its players, and its opponents as well. Why is it then so exasperatingly difficult to get timely, relevant data comparable over time indicating the yield of public funds invested in higher education?[11]

The problem is not limited to higher education. It applies to the lower grades as well. A review of the "educational excellence" reports lead several economists to conclude:

> Most of these studies open with either an implicit or explicit allusion to the critical nexus between education and economic growth. This association is a safe, causal one to draw. Nevertheless, despite a large literature on the subject, economists know too little about the precise linkages between education and growth even to pretend to engineer educational policies aimed specifically at growth.[12]

Notes

1. Council of Chief State School Officers, CCSSO Study Commission Survey on Education and the Economy, September 1986.
2. Council of Chief State School Officers, "Education and the Economy," CCSSO Study Commission, November 1986, p. 3.

3. Marianne K. Clarke, *Revitalizing State Economies* (Washington, D.C.: Center for Policy Research and Analysis, National Governors' Association, 1986).

4. Dan Pilcher, "1986 NCSL State Economic Development Survey," Preliminary results, Denver, December 1986, p. 2.

5. Peter H. Doyle and Candice Brisson, *Partners in Growth, Business-Higher Education Development Strategies* (Washington, D.C.: Northeast-Midwest Institute, The Center for Regional Policy, 1985); Office of Technology Assessment, *Technology, Innovation and Regional Economic Development*, Background Paper, Congress of the United States, May 1983; Office of Technology Assessment, Congress of the United States, Encouraging High-Technology Development, Background Paper #2, February 1984; *Location of High Technology Firms and Regional Economic Development*, Joint Economic Committee, Congress of the United States, June 1, 1982; Don Blandin, *Higher Education and Business: New Partnership for a New Era*, Speech delivered to the Business-Higher Education Forum, Washington, D.C., November 28, 1984; Gerard G. Gold and Ivan Charner, *Higher Education Partnerships: Practice, Policies and Problems*, National Institute for Work and Learning, Post Secondary Education for a Changing Economy Project, April 1986; Ann M. Spruill, *State Policy on Partnerships Between Higher Education and Industry* (Denver: Education Commission of the States, July 19, 1985); *State Initiatives to Promote Technological Innovation and Economic Growth* (Annapolis: Maryland State Board for Higher Education, June 1986); Marianne K. Clarke, *Revitalizing State Economies* (Washington, D.C.: National Governors' Association, 1986); American Association of State Colleges and Universities, *The Higher Education—Economic Development Connection* (Washington, D.C.: SRI International, 1986); Charles Watkins, *State Board Programs to Encourage the Commercialization of Innovative Technology* (Washington, D.C.: National Governors' Association, December 1985); Charles Watkins, Programs for Innovative Technology Research in State Strategies for Economic Development (Washington, D.C.: National Governors' Association, December 1985); Lynn G. Johnson, *The High-Technology Connection: Academic/Industrial Cooperation for Economic Growth*, ASHE-ERIC Higher Education Research Report No. 6, Washington, D.C., 1984.

6. American Association of State Colleges and Universities, *The Higher Education-Economic Development Connection* (Washington, D.C.: SRI International, 1986), p. ix.

7. Ibid., pp. 44, 47.

8. Clarke, *Revitalizing State Economies*, p. 103.

9. Ibid., p. xi.

10. Pilcher, "1986 NCSL Survey," p. 7.

11. Melvin H. Bernstein Group, Inc. and the New England Board of Higher Education, "Higher Education and the State: New Linkages for Economic Development" (Washington, D.C.: National Institute for Work and Learning, April 1986), p. 32.

12. Robert C. Dolan, Clarence R. Jung, Jr., and Robert M. Schmidt, "Research Issues in the Economics of Education and Growth," Southeastern Regional Council for Educational Improvement, Paper No. 409, September 1984, p. 3.

VI

Promising State Initiatives

"Too much of a good thing can be wonderful."
Mae West

Examining state education policies designed to advance economic growth is a lot like jumping into a vat of jello. There is no distinct beginning or end. The activity is less than orderly. And evidence of any direct impact is squishy rather than solid.

Much of the problem stems from how education is being promoted, as the salvation of America's much ballyhooed shortcomings in "competitiveness" and its fraternal twin "productivity." Virtually every state education reform of late has, as its base, an argument for promoting the economy. "Economic development is the hot topic inside state capitols these days," observes one Michigan lawmaker. "If you want to get any attention and action on an issue, you had better tie it to state economic growth."[1]

This situation is understandable and perhaps inevitable, given recent demographic trends and industry's need for an educated workforce. The problem for policymakers is not making the case on behalf of education and economic growth but determining what works.

Rather than attempting to describe every recent state education policy enacted in the name of economic growth, this chapter highlights three practices that increase legislators' odds in figuring out what works: (1) using analysis of demographic trends and strategic planning to identify and articulate policy needs; (2) working across service delivery systems as well as across state boundaries to coordinate policy initiatives; and (3) strengthening legislative oversight of state policies to evaluate their implementation and impact.

Planning

Pogo, the comic strip character, once commented, "We have met the enemy and it is us." Today, Pogo might say, "We have met the future and it is up to us."

Many state policymakers have met the future. They are familiar with economic and demographic trends. The challenge is to figure out what to do about them. Part of the problem is the enormity of the task, of molding state policies to address changes in the workforce and in student needs. Part of the problem is political, of designing long-term strategies that will transcend current occupants of state offices. And part of the problem is operational, of formulating plans and programs that lead to implementation. To illustrate, a 1979 study entitled "Economic Development: The Challenge of the 1980's" concluded that while all states produced state plans, not all used them once they have been written.

Here is the rub, as described colorfully by a former state official from South Carolina:

> Plans aren't worth a tinker's tooth unless you implement them. . . . And when one governor went out of office, there were two truckloads of plans taken from the basement where the water had come in and spoiled them. There's no telling how many millions went into them.[2]

Demographic Trends Analysis

One state intent on not accumulating a stack of mildewed planning documents is *Florida*, where policymakers confront a rapidly growing population—young and old, multiracial and multicultural. Almost 70 percent of Florida's current residents were born outside the state. Nearly 11 percent were born outside the country.[3] State planners estimate that each new arrival eventually will require

$10,000 worth of public services. With 7,000 new migrants coming to Florida each week, the current $30 million price tag for roads, sewers, fire protection, and other improvements is projected to double by the year 2000.[4]

Contrary to the common perception of Florida as a burgeoning retirement haven, seniors have remained a stable part of the population, at 18 percent for over 20 years. The fastest growing group is the 25- to 44-year-olds; they were 27 percent of the population in 1984 and are projected to grow to 30 percent by 1990.[5] Consequently, Florida has had to design state policies to meet the needs of a dynamic and diverse population.

The state's economic base also is changing. According to one expert, "Just 60 years ago a forecast of the state's economy was based on the outlook for turpentine. Now it's based on space stations and computers."[6]

State policymakers have met this challenge by instituting a process of analyzing demographic trends, enabling them to select appropriate policy alternatives. Consensus forecasting began officially in Florida in 1970. As provided by statute, the professional staffs of the Florida Legislature, the governor's office, and the executive branch meet at biannual consensus estimating conferences. These conferences are held once in the fall to provide forecasts for the executive budget recommendations and once in the spring to provide final estimates for the legislature's appropriations process. There are now seven estimating conferences, including one for education.

Each party can veto the figures as they are being developed. Once policymakers reach consensus, however, each must sign off on the forecasts. And state agencies must use the results in all official actions. Although Florida laws do not require the legislature and governor to use the forecasts, they have done so since 1970.[7]

Forecasts cover a 10-year period and include the following topics:[8]

(1) U.S. and state economic forecasts;
(2) State demographic forecasts;
(3) State and local revenue forecasts; and
(4) State budget caseload forecasts, which provide data in several areas, including criminal justice, transportation, and social services. For education, the forecasts contain enrollment projections for the public schools, community colleges, and universities.

Several other states have begun compiling demographic profiles to help them make policy decisions affecting education. Such documents enable policymakers to target programs based on *state-*

specific needs. (For example, is there really a pending teacher shortage in a state and/or in particular areas of the state? Is there a growing bilingual student population whose needs have not been recognized adequately?) State demographic profiles also assist policymakers in considering the needs of the education system as a single enterprise, from early childhood through postsecondary education.

Recognizing the need for systemic information, *California* commissioned a study of its demographic trends in 1986. In *California: The State and Its Educational System*, Harold (Bud) Hodgkinson offered the following recommendations:[9]

(1) California's 1983 education reforms are beginning to address the problems of a fast growing, diverse and stable at-risk student population; however, major improvements in the system will take a decade to appear.
(2) California's three levels of higher education (the community colleges, the state university, and the University of California) are not increasing minority group participation. Nor are they easing the transfer of students from one level to the next.
(3) The state needs to focus on the entire educational system and how each level affects all of the others. Particularly critical are the pre-kindergarten and the junior high school grades. The state budget process also needs to reflect these system-wide targets.
(4) Dealing with the teacher shortage will be easier and less expensive than attempting to reduce class size in California, which has the nation's largest. Given the ethnic and cultural diversity of the state's student population, California should have the smallest classes in the nation if equity were to be achieved.
(5) It is time for the state's business, political, educational, and civic leadership to begin looking at California's total educational system, the individuals served and the outcomes achieved. Little is known about the system as a whole.

Texas commissioned a similar study later in 1986, in which Hodgkinson offered these observations and suggestions:[10]

(1) Texas should invest in providing equal educational opportunities to its large number of at-risk youngsters. A statewide Headstart-type program would help combat the problems of poverty, lack of English speaking ability, physical and emotional handicaps, and parents with little education.

(2) Next to early childhood education, the greatest need is for Texas to increase the percentage of youth who receive a high school diploma. The state is somewhat advantaged because it can fine tune the existing system and concentrate on combatting the reasons for its high student dropout rates.
(3) While several of the state's post-secondary institutions have excellent components, Texas needs to upgrade all sectors of the higher education system.
(4) The state should provide for significant impact from the public schools and the universities in determining state education policy, particularly because the diverse needs across the state defy uniform approaches.
(5) The legislative committees considering public school and post-secondary policies are separate, without any linkage. [Since] Texas higher education can be no better than Texas public schools, the legislature needs to examine these policies in a coordinated fashion.
(6) With Anglo-migration dwindling, the student population will become a minority majority. State policy must therefore "create winners, not just pick them. . . . Texas in the future will have no 'throw-away' youth."

Some states have formulated their own demographic profiles. For example, the *Indiana* General Assembly enacted legislation in 1985 establishing the Indiana Development Council, a nonprofit corporation to serve as an umbrella body of the state's public and private sector leaders. The council is charged with mobilizing the resources needed to implement and maintain a long-term economic development plan for the state. As part of this effort, the council issued a report in 1986, *The Futures of Indiana*, that pulled together the major trends likely to affect economic change in the state throughout the rest of the century.[11]

The report offers a number of policy options based on demographic and economic trends and alternative visions of the future. It ends with three interconnected "vignettes."

(1) *Potential Future Vignette 1:* Population Age Structure Theme based on these trends:
- Continued decline of the birth rate and an aging population.
- A shorter life cycle of work force skills and the need for ongoing retraining.
- Potentially a two-tiered society with the "have-nots" unable to master technological changes.
- Emphasis on individuality.

(2) *Potential Future Vignette 2:* "Hoosier" Perspective Theme based on these trends:
- Emphasis on individuality, frequently misperceived as parochialism and isolationism.
- Emphasis on independence and self-sufficiency.
- Increased need for flexibility and innovation in government; including privatization, cross-jurisdictional cooperation, and public-private partnerships.
- Increasing product diversity and customization, produced in small batches.
- Potentially smaller, decentralized production facilities.

(3) *Potential Future Vignette 3:* Industrial Processing Technology and Economic Structure Theme based on these trends:
- Increased use of computers and automation.
- Increased product diversity and customization.
- Potentially smaller decentralized production facilities.
- Expanded need to export products and to limit imports from third world countries.
- Increased trade among countries.

Responding to Indiana's role in the global economy, the state has added a new component to its school curriculum: requiring all middle schools and high schools to offer courses in extensive geographic world regions and cross-cultural training; and training in a foreign language for most high school diplomas.

The report ends with these words: "The reader should now consider the trends, develop potential futures for Indiana and then ask 'how do we get there?'"

Strategic Planning

In addition to participating in demographic trends analysis, the Florida House also created the Speaker's Advisory Committee on the Future, which has developed a strategic plan and a legislative agenda to address major issues likely to confront the state during the next decade. Including legislator and citizen members, the committee met periodically since its creation in mid-1985 to develop future scenarios in seven policy areas—economic development, education, finance, environment, health, criminal justice, and transportation. The committee prioritized the issues and posed alternative future scenarios. In March 1987, it finalized 71 long-term state goals and developed policy initiatives not only for legislative consideration but also for consideration by other

governmental entities, public and private groups, volunteers, and new partnerships and coalitions.

Four major themes emerged from the committee's work: (1) succeeding in a new world economy; (2) protecting and enhancing what's best about Florida; (3) investing in the state's people; and (4) leadership for tomorrow.

Florida's efforts are notable for their comprehensive and dynamic nature. The strategic planning process is meant to engage the legislature in an ongoing venture of sensing Florida's long-term needs, assessing alternatives, and crafting the policy options. Most notable, however, is the pivotal involvement of the legislature and the ways in which Florida's leaders have revised the strategic planning process to meet legislative needs. According to the Florida report:

> Most models of strategic thinking take their lead from executive directed organizations. Legislatures, though, are different. The collegial aspect is absent in most instances where strategic thinking has been attempted. Moreover, the legislature embraces a range of goals far beyond that of most organizations. Thus, the Committee's approach to policy development and implementation has to be somewhat different. It has to be tuned to the particular rhythms and mores of the legislature.
>
> The nature of the legislative process is such that strategic alternatives must provide the kernel for additional work, the formation of specific policy alternatives. This is the work designed for the Committee in the next phases of the strategic policy process.[12] For legislatures considering how to link the worlds of school and work through realistic state policies, state demographic profiles become a useful starting point. Coordination of policy initiatives across different service delivery systems becomes a logical next step.

Coordination

Nationwide efforts to improve education during the early 1980s were fueled by declining SAT scores and the public's perception that schools had strayed from their traditional emphasis on the three R's. Part of the problem came from the schools' willingness to assume too much responsibility in the absence of other institutions

that could tackle the problems. Schools not only had broadened their curriculum to accommodate multiple demands but also had begun confronting students with new needs—students who lived with a single parent, spoke no English at home, were poor, were pregnant, used drugs or alcohol, and/or generally were at risk of dropping out altogether.

Dealt a new hand by demographic changes, educators are trying to decide how best to teach the three R's (as well as science, foreign language, and computers) to reflect the changing times. "With all the demands on school boards, we could wind up having students who are sexually discrete, well mannered, patriotic, good drivers, but illiterate," is how former National School Boards Association President Nellie Weil sums up the dilemma.

To meet these challenges, policymakers are beginning to embrace initiatives that pool the resources inside the schools with those outside, including both the public and the private sectors.

State Initiatives

One way to address problems that transcend a single state agency or policy area is to forge cooperation across agencies. In *Ohio*, for example, Governor Richard Celeste initiated a state strategic planning process based on "cabinet clusters," working groups formed to address interdepartmental issues. The initial report, *Toward a Working Ohio*, explains the organization this way:[13]

> In some states, strategic planning has been structured around a "state planning agency". . . . In contrast, Ohio's strategic planning process does not involve the creation of a new layer of bureaucracy. Instead, it centers around "cabinet clusters"—working groups formed to address interdepartmental issues. While lacking the centralization found in other states' planning mechanisms, cabinet clusters enable coordination and cooperation.
>
> Cabinet clusters cut across the jurisdictional boundaries between bureaucracies, diminishing the sense of territoriality that has long burdened state government. . . . Effective clusters can provide the Administration with the ability to track the billions of dollars that flow through state government and to identify their ultimate effect. . . . Each cabinet cluster will report to the Governor and the Cabinet. The product of its work will be reflected in administrative actions and/or legislative recommendations in (future) budget recommendations.

Strategic planning in Ohio is organized around four issue areas:

- Jobs and Ohio's economy.
- Human resources: investing in Ohio, which emphasizes education and job training, public welfare, health care, mental health, mental retardation and developmental disabilities, corrections and youth services.
- Ohio's environment and infrastructure, which emphasizes natural resources, the environment, energy, transportation, housing, community development, and water.
- State government: opportunities and limitations, which emphasizes cost containment, state regulatory initiatives, and linking the state to the federal and local governments.

In each area, the appropriate cabinet cluster has drawn up a strategic plan that identifies goals, strategies, policy initiatives, implementation time frames, funding level and mechanism, linkages to other agencies and groups, and lead state agencies. Absent legislative involvement, however, the challenge in Ohio will be whether this interagency coordination will survive under succeeding administrations.

Several states have initiated coordination through legislative efforts. For example, the *Oregon* General Assembly conducted a 1984 study entitled "The Legislative Role in the Job Training Partnership Act and Linking Job Training with Economic Development." Charged with this task, the Joint Interim Task Force on Job Training and Economic Development recommended several ways to improve coordination among state agencies responsible for job training, vocational education, and economic development.

In conducting its work, the Oregon task force raised the following questions, which also might be a useful checklist for other states:[14]

(1) Is the private sector genuinely involved with implementing the Job Training Partnership Act (JTPA)?
(2) Are Service Delivery Areas (SDAs) organized locally to reflect the state's labor markets?
(3) Are trainees receiving necessary support services such as child care?
(4) Are JTPA programs duplicating services and conflicting with other programs?
(5) Are JTPA trainees placed in jobs with a potential for long-term employment and opportunities for promotion?

(6) Are special target populations such as women and minorities receiving adequate services?
(7) Is on-the-job training providing meaningful training or merely a subsidy for business?
(8) Is the executive branch facilitating inter-departmental cooperation so that welfare recipients under the jurisdiction of one department can still receive training under another?

In 1986, the *Illinois* Commission on Intergovernmental Cooperation studied the multitude of training and education for employment programs offered in the state, with the objective of improving the entire system. The report concluded:[15]

> In general, the problems include the lack of generally accepted statewide goals, uncoordinated planning, nonstandardized intake and evaluation, inadequate basic skills development, duplication of services, gaps in services, and conflicting delivery area boundaries—all of which hinder the training and development of those persons most in need of assistance.

The commission offered a number of recommendations, including:

- Maintaining a statewide information system of service delivery related to training and education for employment.
- Drafting legislation related to the purchase of job training and education services that requires one planning process for all purchases, and generates one statewide plan and one regional plan for each subunit.
- Developing legislation that requires unified planning by all elements involved in job training and education. This would require [that] one statewide plan be followed by all providers and a single regional plan for each identical, predetermined geographical area. The plan should be required to establish procedures for an individual student to be able to pass from one level of job training and education to another.
- Requiring purchasers of job training and education services to develop one standardized intake and evaluation system, relating to the job training and educational needs of the client and standardized offering.
- Having purchasers of job training and education require development of basic education skills as a prerequisite

for all applicable programs. Requiring review of all such programs by the State Board of Education.
- Increasing the funding for updating job training and education of instructors.

Multistate Initiatives

Conducting efforts to link education and economic growth also can cross state boundaries. For example, the New England Board of Higher Education (NEBHE) and the Caucus of New England State Legislatures jointly issued a report in November 1983 entitled *Renewing Excellence.*[16] The study surveyed all state legislators from the six *New England* states on the role of higher education in enhancing the region's economy. Over half of New England's 1,323 legislators responded. Nine of every ten cited the quality of the region's higher educational system, and 98 percent pointed out its importance to the economy. Ninety-three percent of the lawmakers saw a role for higher education in helping retrain the region's labor force to meet the demands of the ongoing revolution in high technology.

Nine of ten legislators favored a coordinated regional system for retraining New England's labor pool, and more than three of every four legislators favored increased communication between the institutions of higher education and state capitols on how they could become mutually supportive.

Fewer than a third of the legislators indicated that they had ever been contacted by representatives from New England's post-secondary institutions. And just over one in four had initiated contacts with educators to discuss how they could use their respective resources to mutual benefit. The caucus and NEBHE subsequently used these findings in presentations on the role of higher education in economic growth to state leaders in each of the New England states.

Efforts to forge multistate cooperation on issues affecting education and economic growth also serve other regions of the country. The Western Interstate Commission for Higher Education (WICHE) has published several documents on the role of high technology and other energy-related issues involving higher education in the *western* states.[17] And the *southern* states have banded together to compare needs and build cooperative initiatives to upgrade educational programs and the South's economic position, assisted by the Southern Regional Education Board (SREB) in Atlanta and the Southern Growth Policies Board in North Carolina's Research Triangle Park.[18]

Public-Private Sector Initiatives

Virtually every state and local community can boast a number of cooperative ventures between the public and private sectors to link education and economic growth. One of the most ambitious partnerships is Jobs for Connecticut's Future (JFCF), which has the following objectives:[19]

- To project the kinds of jobs that will be available in *Connecticut* over the next decade.
- To describe the skills and training, retraining, and education needs to prepare the state's residents for the economy, jobs, and opportunities of the future.
- To forge a broad and meaningful partnership between the public and private sectors in addressing the challenges revealed by research and analysis.
- To develop a model for use in the other states (a similar project is underway in Arkansas).

In 1986, JFCF identified five priorities that it would pursue:

(1) Institutionalizing the work of JFCF to sustain the public-private sector cooperation.
(2) Encouraging balanced economic growth among different industries and across different regions of the state.
(3) Averting an anticipated labor shortage in the 1990s by helping residents qualify for training and retraining programs.
(4) Improving the teaching of interpersonal, cognitive, and motivational competences in all education and training setups including creating a state-of-the-art public/private training institute for this purpose.
(5) Enabling more employers, especially small businesses, to offer continuing training and, when necessary, retraining for future jobs in their own companies or elsewhere. This includes legislative changes, such as tax credits and training vouchers, to increase employers' incentives to provide appropriate training.

JFCF then outlined a series of challenges to "the stakeholders"—government, education, business, labor, community groups, and individuals—working together to address these priorities.

Thus, cooperative efforts to link education and economic growth exist on a number of different levels, address a variety of

issues, and involve a multitude of parties. It may be too soon to evaluate the outcomes. Simply the existence of such ventures, however, acknowledges the need to address education and economic growth issues in a new, more comprehensive way.

Oversight*

In enacting numerous education programs designed to stimulate economic growth, legislatures have thrown a lot of balls into the air. Now, they are beginning to ask where the balls have landed and, more important, what the impact has been. The long-term effects may not be known for awhile. Several states, however, are taking steps to better monitor progress along the way. At least five legislatures have established special committees to oversee implementation of their recent public school reform packages—Illinois, Missouri, South Carolina, Tennessee, and Texas. California is funding PACE, an in-state education policy research group with university ties, to evaluate the impact of its 1984 reforms. Other states are enlisting legislative staff to monitor implementation of their statutes. Whatever the approach, all legislatures have a vested interest in assessing the impact of the programs they have initiated.

Overseeing State Education Reforms: A Prototype

Arguably, the most comprehensive state education reform bill in the country was the one enacted by *South Carolina.* The Education Improvement Act of 1984, or the EIA as it is known inside the state, contains 61 initiatives dealing with preschool through high school levels, and is accompanied by a 30 percent increase in state aid to education and funded by a one cent increase in the sales tax.

Richard Riley, the former governor of South Carolina who crafted the EIA, described the reform process this way:

> Since the summer of 1983, South Carolina has launched a new approach to education improvement. This approach is

*In 1987, NCSL published a report to provide legislators with a comprehensive guide to assist them in overseeing the impact of their recent efforts to improve elementary and secondary education. *Evaluating State Education Reforms: A Special Legislative Report,* written by Stanford University Professor Michael Kirst and funded through a contract with the Office of Educational Research and Improvement, U.S. Department of Education, is available from NCSL's Denver office.

> based on the premise that business people, the educational community, and local and state government leaders have a strong common interest in excellence in education. Through two statewide blue-ribbon committees composed of 61 leaders in business, education, and the legislature, the state launched a massive grassroots needs assessment and resolution effort to make a quantum leap forward in education. . . . The partnership which developed and passed the education improvement package is now involved in implementing and monitoring the programs.[20]

Sustaining that partnership and through it, the statewide commitment to improving education is a priority of state policymakers in South Carolina. At the heart of this effort is the Select Committee of the Education Improvement Act, mandated by statute to oversee implementation and operation of the comprehensive reforms. Membership on the select committee is broad based, intended to guarantee representation of all the key state education policymakers, the governor, legislative leaders, education and fiscal chairs, as well as the state superintendent of education and the commissioner of higher education.

The select committee is charged with supervising the expenditure of EIA funds and making recommendations to the State Board of Education as it implements the act. It is an active participant in the implementation process, not just a recipient of information. The committee meets at least quarterly and issues an annual report to the General Assembly on the progress of the reforms.

During 1986, the select committee concentrated on reviewing the development and implementation of a large number of new and expanded education programs. The activities included reviewing the proposed guidelines and regulations of a number of state agencies, analyzing reports from other legislative committees, and identifying related education issues for further study, so that the committee can make recommendations to the State Board of Education and the legislature. The committee also serves as a forum for legislators, citizens, and special interest groups, to address emerging and controversial issues.

To establish direct links to local educators, the select committee created a statewide subcommittee to provide a way for teachers and principals to share information with the legislature and with themselves as they implement the education reforms.

After surveying key state policymakers and educators on the role of an oversight committee, the select committee proposed a number of recommendations to improve its own capabilities.[21] Included were three legislative "needs" in monitoring implementation of state education reforms over time:

(1) The need to specify in statute the authority and responsibilities of an oversight committee vis-à-vis its relationship with other legislative committees and with state agencies. This is particularly important as the role of the oversight committee shifts over time from monitoring implementation of the reforms to evaluating the outcomes.
(2) The need to engage the standing committees—particularly education and appropriations—in the activities of the oversight committee. Such efforts will maximize the chances that everyone will be moving in the same direction, as well as broaden the base of support for the reforms inside the General Assembly, over successive legislative sessions. The select committee, for example, sent its amendments to the EIA to the standing education committees for review.
(3) The need to provide all members of the legislature with ongoing information on both the activities of the select committee and the impact of the education reforms.

South Carolina has taken other steps to sustain political and public commitment to the reforms over time. In addition to creating the select committee, state policymakers are attempting to forge a close relationship between the legislature and executive branches in overseeing implementation of the EIA. They also have institutionalized the public-private partnership instrumental in enacting the EIA in 1984.

The Division of Public Accountability. As part of the 1984 reforms, the South Carolina General Assembly created the Division of Public Accountability inside the State Department of Education, to monitor implementation of the EIA. The governor and the state superintendent of education jointly select the deputy superintendent who heads the division from a list of recommendations furnished by a joint subcommittee of education and business leaders. The new division provides information to the select committee, as well as to the public, on the progress of the reforms. Each year it publishes "What is the Penny Buying for South Carolina?"

The Blue Ribbon Committees in Education. South Carolina has maintained the input of key business leaders in the reforms by creating two committees, the Committee on Financing Excellence and the Business-Education-Legislative Partnership. The statute requires that they review the State Board of Education's annual assessment report, submitting their recommendations to the legislature. The committees also jointly review State Department of Education products in implementing the EIA, making their recommendations to the board. The two blue ribbon committees

have their own publication, entitled *Report Card: Education Improvement Act Newsletter.*

In building a support base for its education reforms over the long term, South Carolina has recognized the need to provide information over the short term. Thus, the state has mounted what is best described as a marketing campaign to get the word out. And the early word is good. Built on a series of education reforms enacted in the late 1970s, the EIA of 1984 is having the intended results.[22] Test scores in the basic subjects are up. Writing skills are improving. SAT scores are higher. Student attendance is increasing. More four-year-olds are being served in child development centers. More students who need extra help are receiving it. And the number of local business-education partnerships is increasing.

So far, the news is positive. But if any news is bad, South Carolina—through its early warning system—should be able to take corrective action.

Notes

1. State Representative David Hollister, Remarks during an NCSL planning meeting on early childhood education, Washington, D.C., September 1985.

2. Wendy Brooks, former director of South Carolina's Division of Local Government, as quoted by Neal R. Pierce, Jerry Hagstrom, and Carol Steinbach, *Economic Development: The Challenge of the 1980s*, Council of State Planning Agencies, 1979, pp. 27-28.

3. Eric Morgenthaler, *The Wall Street Journal*, September 15, 1986, p. 1.

4. Jon Nordheimer, *The New York Times*, September 15, 1986, p. 22.

5. Morgenthaler, p. 1.

6. Carol Taylor, University of Florida, as quoted in *The New York Times*, September 13, 1986, p. 16.

7. Florida, Consensus Estimating Conference, U.S. and Florida Economic Forecast, Fall Conference, FY 1985-86 and 1986-87, pp. i and ii.

8. Memorandum from James Zingale, former director, Joint Legislative Management Committee, Division of Economic and Demographic Research, March 20, 1985.

9. Harold L. Hodgkinson, *California: The State and Its Educational System* (Washington, D.C.: Institute for Educational Leadership, 1986), June Summary of Major Points.

10. Harold L. Hodgkinson, *Texas: The State and Its Educational System* (Washington, D.C.: Institute for Educational Leadership, December 1986), p. 11.

11. Indiana Economic Development Council, Inc., *The Futures of Indiana: Trends Affecting Economic Change, 1986-2000*, February 1986.

12. The Speaker's Advisory Committee on the Future, *Florida Sunrise: Which Tomorrow? Choosing Strategies for the Future*, March 1987, p. 46.

13. *Toward a Working Ohio: A Strategic Plan for the Eighties and Beyond, Jobs and Ohio's Economy*, December 1983, pp. 4-5.

14. Joint Interim Task Force on Job Training and Economic Development, *Final Report to the Oregon Legislative Assembly: The Legislative Role in the Job Training Partnership Act and Linking Job Training with Economic Development*, May 1984, pp. 1-2.

15. Illinois Commission on Governmental Cooperation, *Education for Employment in Illinois*, June 1986, pp. i-ii.

16. New England Board of Higher Education, *Renewing Excellence, The 1984 New England Legislative Study*, November 1984.

17. Western Interstate Commission for Higher Education, High-Technology, *Manpower in the West: Strategies for Action*, January 1983; and *Fact Book on High-Technology and Energy-Related Higher Education in the West*, January 1983.

18. *See*, for example, Southern Regional Education Board, Lynn Cornett, *1986—Incentive Programs for Teachers and Administrators: How Are They Doing?* December 1986; and Southern Growth Policies Board, Kathleen Healy, *Making Connections: Education, Training and Economic Development in the South*, August 1984.

19. *Executive Reports of Jobs for Connecticut's Future*, January 1986, p. 3.

20. Richard W. Riley, "In South Carolina New Partnerships and Investments in Education Are Paying Off," *Pro Education*, December 1983, p. 23.

21. "Legislative Oversight: The South Carolina Select Committee," January 1986 and "Follow-up Report," July 1986; funded by an NCSL cost-sharing award, supported by the Office of Educational Research and Improvement, U.S. Department of Education.

22. For more detail on the impact of South Carolina's education reforms, *see* Division of Public Accountability, State Department of Education, "What Is the Penny Buying in South Carolina?," December 1986.

VII

Putting the Pieces Together

"Don't look back. Something might be gaining on you."

Satchel Paige
(Baseball Pitcher)

"America's ability to compete in world markets is eroding," warns the Carnegie report *A Nation Prepared.*[1] Former U.S. Secretary of Labor William E. Brock maintains that "competitiveness is the new code word in Washington," where more than 5,000 "competitiveness bills" were introduced in Congress in 1986 before the topic really got hot. Over one-third of the entire body joined the Congressional Caucus on Competitiveness in January 1987.[2]

No longer dominant in the global marketplace, beset by an uncertain international economy, and challenged by advancing technologies, American business is relearning how to compete. And, in the process, business is turning to the schools to provide the skilled workforce.

"Education matters in this new global race because the workforce matters more than machinery, more than capital, more than technology," asserts one *Washington Post* reporter.[3] "The single largest contributor to a region's economic health is the

strength of its educational community," adds MIT economist David Birch.[4]

Nowhere have these claims found a more receptive audience than inside state government. Political leaders, often aided by business leaders, have led a nationwide effort to improve the schools. During the past five years, this reform movement has merged the twin themes of educational excellence and state economic growth. More recently, the reforms have been cast in the language of international competitiveness.

Competing internationally also means that states are more willing to take a broad-based approach to marshalling public sector resources behind private sector success. When the federal government debated this course of action during the late 1970s, it was beaten back amid angry cries of "socialism" and "centralized planning."[5] Taking a cue from the federal experience, "industrial policy" may not be what states are calling purposeful, comprehensive efforts to bolster their economies. But it is clearly the course that many states are pursuing, some with more success than others. The following are three examples.

Building on Existing Resources: Pennsylvania*

One of the states affected most severely by economic change within the last decade was Pennsylvania, which traditionally relied on heavy manufacturing for its economic foundation. Because of the loss of industry and jobs in the period 1975-1980, state policymakers sought to revitalize and diversify the state's economy.[6]

Then-Republican Governor Richard Thornburgh launched the effort in 1979 with a directive to the State Planning Board, which worked with academic experts to study national and international economic growth prospects and identify the state's comparative economic advantages.[7] Research spotlighted the state's economic strengths in educational and technological resources. The state was fifth in the nation in the number of workers in advanced technology industries and the number of engineers and scientists. Of the nation's top 50 research universities, four were located in Pennsylvania, and they were working in such areas as robotics, computer-assisted design and manufacturing, electronics, computer science, and agriculture. To address the state's underlying

*This section is excerpted from Dan Pilcher, State Industrial Policy: An Analysis of Public Goods in a Trading Context, Unpublished M.A. Thesis, University of Denver, March 1986.

economic problems, the planning board's proposal called for an effort to build on the state's comparative advantage in higher education by establishing links between the universities and the private sector, and thus use educational institutions more effectively in pursuing economic growth.

State officials held hearings around the state on the multiyear planning effort called "Choices for Pennsylvanians" and involved more than 185,000 persons in trying to chart a course for the state's economic future. From this research, the planning board drafted a strategy for economic revitalization that stressed a catalytic role for the state in facilitating advanced technology development.

The private sector played a major role in the development of the plan. The MILRITE Council, a state-sponsored business-labor organization charged with improving the state's economic base, participated in the development of the plan. The Pennsylvania Business Council, consisting of corporate leaders, reviewed the proposal and recommended changes, which were then incorporated. The governor's planning staff met with other business leaders, who agreed to participate in the program and try to match the state funds. The proposal was thus designed to meet the needs of those in the private and educational sectors who would be asked to implement and participate in the program.

The strategy, based on advanced technology development, was two-fold: first, to emphasize the start-up of new, advanced technology firms; and second, to apply new technologies to the processes and products of the state's mature industries. The immediate goal of the strategy was to create thousands of jobs for the state's residents by the end of the decade by rejuvenating existing industries and fostering new firm start-ups. The long-range objective was to improve productivity growth and diversify the economic base.

The Ben Franklin Partnership

Proposed to the Democratic-controlled legislature and overwhelmingly adopted in 1983, the Ben Franklin Partnership Challenge Grant Program for Technological Innovation began with initial funding from the state.[8] The Ben Franklin Partnership is part of a long-term effort to muster all of Pennyslvania's resources to support job growth through research and development, education, and entrepreneurial development," wrote Dr. Walter H. Plosila, deputy secretary for technology and policy for the state Department of Commerce.[9]

The partnership's board, whose members include business, labor, legislative, and academic representatives, awarded $250,000

grants in 1982 to each of four public-private consortia to establish Advanced Technology Centers (ATCs). The ATCs provide technical and financial assistance to entrepreneurs, support educational and workskill training efforts for jobs of the future, and fund joint private-public research and development projects. (The ATCs, which specialize in particular industries, will be discussed in greater detail shortly.)

The consortia that govern each ATC consist of labor, business, and economic development groups, and research universities. The ATCs compete against each other for the partnership's grants but first must secure private sector matching funds before the partnership commits its funds. The ATCs must demonstrate private sector involvement, quality of proposed projects, and past performance of the projects in creating jobs. The partnership was designed as a performance-based, competitive effort to forge collaboration among the involved groups.

The partnership focused on "advanced technology" instead of "high technology," as other states had done. *High tech*, a term popularized during the early 1980s, has proven elusive to define, although it is commonly used to denote such industries as computer hardware and software, microelectronics, telecommunications, biotechnology, and medical technology. California's Silicon Valley, Boston's Route 128, and North Carolina's Research Park Triangle are held up as examples of the economic benefits of high tech: rapid economic growth and clean industries.

In a major report on technology innovation and regional economic development, the congressional Office of Technology Assessment (OTA) found that high-tech industries, depending on the definition, account for 3 to 13 percent of employment in the United States.[10] The OTA study examined five definitions and notes that there is no generally accepted definition. Although jobs in these industries are expected to grow somewhat faster than overall employment, they will account for only a small portion of total job growth. The OTA study noted, however, that the largest effects of technology development on employment growth "will come through the diffusion and widespread application of their products by other industries, 'smokestack' and services alike."[11]

By using a broader concept of advanced technology, Pennsylvania sought to incorporate technological advances to existing industries as well as generate new products and processes and help create new firms on the cutting edge of technological innovation. Technological innovation consists of the "steady, evolutionary improvements in technical knowledge and application over time."[12] Its components are research, application, and diffusion. Technological innovation first depends on scientific and technical research. The basic and applied research performed by a state's higher educa-

tional institutions is a central part of a strategy for technological innovation. Next, the private sector is involved with universities in the transfer of new ideas and innovations from research laboratories into new products and services in the marketplace. Third, technological innovation is diffused over time and becomes widely accepted. Successful diffusion may require that the innovation be sheltered from competitive forces until it has had a chance to grow strong enough to survive on its own. States provide this shelter for the birth and nuturing of new firms, especially high-technology firms, through such programs as small business incubators (which provide short-term subsidized rent, office support, and other basic services), seed and venture capital, and managerial and technical advice.

A significant feature of the Ben Franklin Partnership's underlying philosophy is that the ATCs specialize in specific industries in which the state seeks a competitive advantage. It is essentially a challenge grant program to support the four Advanced Technology Centers:

- Northeast Tier Technology Center (Lehigh University), which focuses on computer-aided design and manufacture, polymers and other advanced materials, biotechnology, and microelectronics.
- Advanced Technology Center of Southeastern Pennsylvania (University City Science Center of Philadelphia), which concentrates on advanced sensors, biomedical technologies, space productivity, materials R & D, and technology for the handicapped.
- Western Pennsylvania Advanced Technology Center (Carnegie-Mellon University), which works on robotics, high-technology materials (including processes and applications), and biological/biomedical technology.
- Advanced Technology Center of Central/Northern Pennsylvania (University Park), which researches food and plant production and processing, coal and mineral production, energy conservation, biotechnology, and manufacturing management and control systems.

The partnership established the centers in each of the state's major geographical regions to meet the regions' differing needs and to encourage each region's constituent groups to cooperate in developing the centers' plans. Each center has three functions mandated by law:

(1) *Joint Research and Development.* A firm determines what its R & D needs are and how a higher educational

institution can help meet them. The partnership requires that the firm or other sources, or both, match the state funds on at least a one-to-one basis, with the nonstate money being committed first. The centers emphasize that rapid commercialization of scientific discoveries and proposals are reviewed for likely commercial effects, with highest priority assigned to those with the greatest employment possibilities in the shortest time.

(2) *Education and Training.* The ATCs fund projects that fill gaps in the existing educational/job training system, and link community colleges, vocational schools, and other higher educational institutions. The centers stress curriculum changes that will train workers for jobs of the future because a state's ability to compete depends on the availability of skilled workers. Ninety percent of the workers of 1990 and 75 percent of the workers of the year 2000 are in the workforce now.[13] Hence, the centers work with universities, community colleges, and vocational schools to update and modernize curricula to meet the evolving needs of the private sector and adult workers.

(3) *Entrepreneurial Development.* The centers provide a range of services to assist business people in developing entrepreneurial skills, including preparation of business plans, securing venture capital or conventional financing, and providing "incubator" space where small, newly started firms can share services and keep costs down during the initial phase of existence. Entrepreneurship, supported by improved working relationships between universities and businesses, is seen as instrumental in commercializing technological innovations and discoveries in products and processes.[14]

Assessing the Impact

Pennsylvania's industrial competitiveness policies are the result of a public-private strategic planning process that established a consensus on the state's economic problems and growth prospects.

One criticism that may be directed toward the Pennsylvania effort is that little apparent cooperation has been made with other states with similar industries to insure coordination to increase industry-wide economic competitiveness and thus lessen interstate competition.

In addition, the question of the effectiveness of the Ben Franklin Partnership's programs raises methodological considerations. The partnership's report of its activities concentrates on "numbers" of businesses counseled (3,616), venture capital committed ($15.3 million), graduates of its training/education programs (6,559), number of persons (21,067) attending workshops (334), number of start-up firms (124) employing (561) workers, number of expanding firms (89) employing (755) more workers, number of firms retained (103) and jobs (726) saved. Nine patents were granted and 13 applications were pending. (Data is for the period March 1, 1983, to December 31, 1984.)[15]

This raises the question of how to evaluate the success of the program and its effect on businesses. Pennsylvania relies on the traditional method of reporting "numbers," a not-uncommon approach in state economic development. At the heart of this method is the number of jobs saved or created. Rigorous cost-benefit analysis of state economic policies, with all of their complexity and variety, carries a cost for state government. At this time, most policymakers seem content to measure success in terms of firms assisted and jobs saved and created.

The partnership has generated specific and apparently rigorous criteria for the operation of the programs and for qualifying firms for assistance. The cooperative effort with business seeks to leverage private sector funds with public funds, and the record to date is that the partnership has more than fulfilled this requirement. The climate for entrepreneurial development was strengthened by the state's efforts. Several policy instruments are intended to reconcile the social and political pressures of economic adjustment (technical assistance to determine prospects for worker ownership; job retraining for displaced workers; and food, medical, and mortgage relief for displaced workers). The Ben Franklin Partnership provides assistance to the educational and job training systems to insure that workers will be trained with the skills needed by the state's industries in the future. Schools were strengthened with increased requirements and funds for mathematics, science, and computers.

Pennsylvania appears to have made a serious effort to coordinate the new industrial policies with existing economic policies, while redirecting some established programs to serve the new policies. By applying advanced technology to its existing mature industries—steel, metal fabrication, coal, for example—the state government has apparently avoided being backed into a preservationist position by affected interest groups.

An Industrial Policy That Failed: Rhode Island*

In mid-1984, *The New York Times* described Rhode Island's Greenhouse Compact as "the most ambitious state industrial plan proposed in the United States." Nearly all states have adopted bond issues, tax credits, grants, loans, job training programs, and/or incubators to assist existing and emerging industries.

What set Rhode Island apart, however, were two things: First, the Greenhouse Compact generated probably the most extensive study of any state's economy in history, dating back to the 17th century, taking 13 months to complete, and encompassing nearly 1,000 pages. Second, Rhode Island became the first state to seek voter approval of the entire package. On June 12, 1984, the voters turned thumbs down by a resounding 80 to 20 margin.

Because numerous states have been or will be debating the merits of a state industrial policy, it is worth examining the Greenhouse Compact—what it would have done and why it failed.

The Problem: A Declining Standard of Living

Rhode Island's major economic problems arose because no successful economy had replaced the once burgeoning textile industry. Numerous businesses had either failed, moved, or expanded out of state and foreign competition has hit hard. Rhode Islanders have a lower standard of living than their New England neighbors, with some of the poorest manufacturing wages in the country. In addition, the average wage rate is declining, out-migration is high, employment prospects appear grim, and the state suffers from a negative business image.

The Proposed Solution: A State Industrial Plan

Against this backdrop, then-Governor J. Joseph Garrahy appointed a 69-member Strategic Development Commission of business, labor, education, and public sector leaders to formulate and support a plan that would get Rhode Island back on an economic fast-track. The commission set about devising a long-term economic development strategy to reduce unemployment and raise the average wage rate. Specifically, it adopted a plan that pro-

*Portions of the following section originally were printed in Peggy M. Siegel, NCSL *State Legislative Report*, "State Approaches to Targeting Education for Economic Growth: What Works? What Doesn't?" February 1985.

posed to create 60,000 jobs with higher than average state wages by 1990 and that would have pumped $750 million worth of investments into Rhode Island's economy.

Drafters of the Greenhouse Compact chose not to make a strong economic argument for improving elementary and secondary education. Instead, they concentrated almost exclusively on the role of higher education in promoting state economic development, namely, through university-based research and development.

Among its many recommendations, the compact proposed to create a quasi-public Strategic Development Commission for seven years, to oversee the following programs:[16]

- A grant/note expansion incentive program to encourage firms that pay above-average wages to expand in Rhode Island;
- A product/market demonstration incentive program to encourage Rhode Island firms to pioneer new products and markets;
- A number of job expansion programs for targeted industries;
- Four research greenhouses for selected emerging industries to accelerate the process of commercial product developments, in cooperation with state universities and the health care field; and
- Several research institutes, an Academy of Science and Engineering, and other fiscal incentives, to build a university-private sector partnership.

Next, proponents of the Greenhouse Compact convinced the Rhode Island General Assembly to enact many of the recommendations, subject to voter approval in a June special election. They then spent their time crisscrossing the nation's tiniest state in some 800 meetings to convince Rhode Islanders to support the proposal.[17]

Why It Failed

Shortly after the referendum on June 12, the Brown University Center for Public Policy and American Institutions conducted a telephone survey of 1,001 Rhode Islanders to discover the reasons for their overwhelming opposition to the Greenhouse Compact.[18]

The researchers concluded that the voters had not rejected the concept of a state industrial policy per se. Rather, Rhode Islanders were voicing their dissatisfaction with how the commission had formulated the compact and how proponents then presented the plan to the public. According to the study, "Rhode Islanders rejected

the Compact not because they felt that the government had no legitimate role in economic development and job creation. Instead, voters turned down the proposal because it offered 'nothing for something,' i.e., few direct benefits in exchange for what citizens perceived as high costs for themselves."[19]

Ninety-three percent of the respondents believed that the compact would raise their taxes despite the fact that the legislature did not include any provision for a tax hike when it put the plan on the ballot. Only 20 percent believed that they would benefit in any way, and only 25 percent felt that they might secure a better job as a result of the Greenhouse Compact. In addition, the voters believed that benefits would accrue to the type of groups represented on the commission—bankers, politicians, big business, and the universities. According to the study, voter mistrust of the appointed "elites" on the commission was the single most important source of opposition, stronger even than the perception of higher taxes.

Thus, other states contemplating the merits of an industrial policy should not be dissuaded by Rhode Island's experience; apparently nothing inherent in the Greenhouse Compact itself prevented a more favorable voter reaction.

Ironically, an upswing in the national economy in 1983-1984 hindered passage of a state industrial plan in Rhode Island. Between the time that it had been proposed and disposed, unemployment had begun to drop. The state showed a budget surplus. Apparently, the onset of good times seems to work against arguments in favor of comprehensive, far-reaching economic measures. A second university-based analysis of why the Greenhouse Compact failed also concludes:

> The irony of the Compact's defeat is that our data show voters in Rhode Island, including a substantial majority of those who voted against the Compact, believe that government should take a leading role in improving the state's economy. They agreed with the idea that Rhode Island's economy is worse than that of other states, that it can be improved by careful planning, and that state government should take the initiative.[20]

An Industrial Plan That Is Succeeding: Kansas*

The economic development initiatives taken by the state of Kansas in 1985-1987 may well set a bench mark for other states in terms of approach and substance. Strong bipartisan support was a significant feature of the Kansas process. During 1986, the legislature enacted ten bills and two proposed constitutional amendments; and the amendments were approved by the voters at the following August primary and November general elections. "It was amazing—absolutely amazing," said then-House Majority Leader Jim Braden, who is now House Speaker.

Kansas traditionally has relied on an economy that has been based on three major sectors: agriculture, energy (oil and natural gas), and manufacturing (mainly general aviation). During most recessions, at least two of the three main sectors would thrive.

The 1981-1982 recession, however, represented a sea change in the thinking of Kansans. All three sectors suffered, and state leaders decided it was time to launch an economic development initiative. The process had four stages: (1) development of an analysis of the state; (2) development of a plan based on the study that would address the weaknesses of the economy; (3) legislative enactment of the plan; and (4) implementation of the legislation.

The goal of the process from the beginning, said Senator Wint Winter, was the successful implementation of legislation that resulted from the study. In 1985, legislators had become aware of the initiatives that other states had taken in economic development. In Kansas, various interest groups advanced plans that reflected the parochial nature of the groups. The business sector wanted tax incentives and reduced taxes—particularly the elimination of the sales tax on equipment and machinery—and they argued that this would lead to the creation of jobs. Educators asserted that more money spent on education would result in more jobs.

Legislators, however, were concerned that there was no objective basis for these arguments. In the beginning, the few legislators who supported an economic development initiative faced the problem of convincing their colleagues that what they were proposing was a good idea.

Winter said there were three reasons for undertaking the economic development initiative. First, there exists the academic

*This section was written by Dan Pilcher, Principal Staff Associate for Economic Development and International Trade, NCSL. It is an abbreviated version of an unpublished report on economic development in Kansas.

discipline to analyze a state's economy and to compare it with that of other states, as well as to design specific objectives and plans. Second, the Kansas economy was in serious trouble, and it was not rebounding from the 1981-1982 recession as it had from earlier national recessions. Third, the Republican-controlled legislature confronted a Democratic governor—John Carlin—who advocated a tax increase as a way to spur the economy. In 1984, the legislature increased the state sales tax by 25 percent, or one full cent. Other taxes were increased as well at that time.

From the beginning, the legislative proponents of an economic development initiative sought to build a broad-based coalition in support of their efforts. The process of developing a study would serve as a way to build support for enacting the subsequent legislative recommendations.

Universities were used for the primary task of gathering data. In 1985, the legislature appropriated $40,000 for the study of the economy's weaknesses and broad suggestions for recommendations to improve it. The legislature, however, required a 1:1 match by the private sector to fund the study.

The legislature needed the cooperation and active participation of the executive branch in this undertaking. The $40,000 technically was appropriated to the Department of Economic Development, whose trust was needed if the effort were to be successful. Thus, the coalition-building effort of the legislators had involved the executive branch, the academic community, and the private sector, as well as the legislature.

After a couple of months following the end of the legislative session, however, little had happened, Winter noted. Braden and Winter formed an ad hoc group that included the secretary of the Department of Economic Development as well as representatives from the private sector. The ad hoc group then issued a request in the summer of 1985 for proposals (RFPs) to the universities. The universities were invited to submit proposals to conduct the study.

The University of Kansas' Institute for Public Policy and Business Research, which was headed by Professor Tony Redwood, won the competition and was awarded the contract. Wichita State University also contributed to the study. National experts—ASLAN of Washington, D.C.; Midwest Research Institute of Kansas City; and Counsel for Community Development of Cambridge, Massachusetts—who could critique the Kansas study and contribute their knowledge of the economic development initiatives in other states, were hired.

A significant aspect of the study's development was that the private sector was involved, by virtue of its $40,000 contribution to the cost of the study, but the private sector had absolutely no control over the study and its recommendations. Bankers, the Kansas

Farm Bureau, realtors, railroads, and aircraft manufacturers contributed to the private sector's $40,000 portion of the study, matched by the universities in in-kind services.

The study's preliminary findings were issued in December 1985, and became known as the Redwood-Krider report. The recommendations were presented at a joint session of the House and Senate Ways and Means committees for maximum publicity to get the attention of the state's citizens. The committees received the message that the state's economy was in trouble and that it would not turn around on its own accord, without initiatives by the public and private sectors. According to Winter, the hearing "scared people" and "got the attention of the public and the legislature," which helped eliminate any political struggles that might have arisen.

The legislature created a special legislative Economic Development Commission (EDC), to draft legislation on the study's recommendations during the next six weeks of the session. The EDC concluded that the state's effort should go into helping retain existing firms and assisting them in expansion as well as helping new firms start up. The resulting legislative package includes the following economic development initiatives:

(1) An income tax credit for investment in R & D in Kansas to further the creation of new and diversified products and processes.
(2) Creation of the Kansas Technology Enterprise Corporation, a partnership among the private sector, universities, and the state, to foster innovations in existing firms and the development of new businesses.
(3) A statewide risk capital system to provide venture capital for high-risk research efforts and for developing innovative products. According to the Redwood-Krider report, the lack of such capital was the "main economic development problem for Kansas."
(4) A constitutional amendment lifting the ban against using state funds for "internal improvements," including investing in economic development.
(5) A constitutional amendment permitting a state lottery and parimutuel betting, part of which would fund state economic development initiatives.
(6) Enacting legislation for counties to establish enterprise zones.
(7) Creation of a new Department of Commerce, including a new division for Trade Development, from the old Department of Economic Development.

(8) Creation of Kansas, Inc., a nonprofit corporation that brings together representatives from state government, business, agriculture, higher education, and labor to work together on short-term and long-term strategic economic analysis and planning.
(9) Revisions in the income tax and sales tax incentives for business development.
(10) Creation of permanent economic development committees in the House and Senate, as well as a standing joint economic development committee so that the legislature could provide coordination, continuity, and visibility for economic development issues.

According to Belden Daniels, a private consultant who worked with the Kansas Legislature in developing this package: "[The Redwood-Krider report] is the finest single job that any state has ever done of looking danger straight in the face and recognizing extraordinary opportunity."

But Daniels is also the first to admit that the biggest challenge is yet to come:

> Conceiving that plan, designing that plan, passing the plan through the legislature, remarkable as all of that may seem, that is the easy part. The implementation is the hard part. The implementation is where the wits, grits, and concern really come out. And that is absolutely, 100 percent up to the citizens of Kansas.

Conclusion

State officials are investing heavily—both fiscally and politically—in policies that promise to stimulate state economic growth. In the process, they are learning some important lessons.

First, rather than chase smokestacks or offer businesses unlimited tax giveaways, today's policymakers are crafting their states' economic futures around existing strengths. They are helping existing manufacturing industries modernize. And they are nurturing homegrown industries, particularly small businesses and high-tech firms. Pennsylvania is a good example of a state that is using an important state resource, its higher educational system, to anchor its economic development initiatives.

Second, rather than be dependent on a single industry or resource, today's policymakers are taking overt steps to diversify

their state economic bases. These efforts characterize recent economic policies of all states, but are particularly apparent in the energy and Farmbelt states. Kansas is a good example of a state that is initiating fiscal and educational policies to make itself less dependent upon its traditional economic base.

Finally, rather than attack their problems on a piecemeal basis, increasingly, today's policymakers are embarking on ambitious programs to stimulate their state's economies, using education as the cornerstone. While it is still too soon to gauge their success, early signs favor those states that have adopted a comprehensive, long-term, collaborative approach to solving their problems—a process of thinking and acting that will engage the energy and talents of not only current officeholders but also their successors.

Notes

1. Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, Report of the Task Force on Teaching as a Profession, 1986, p. 22.
2. David Broder, *The Washington Post*, April 16, 1987.
3. Barbara Vobejda, *The Washington Post*, April 14, 1987.
4. David Birch, "The Atomization of America," *Inc.* magazine, March 1987, p. 21.
5. Noel Epstein, *The Washington Post National Weekly Edition*, January 12, 1987.
6. Richard Thornburgh, Governor of Pennsylvania, "Economic Development in Pennsylvania: A Status Report and Blueprint for the Future," mimeographed, November 1984.
7. Walter Plosila, "Pennsylvania's Ben Franklin Partnership," *Bell Atlantic Quarterly* 1, no. 2, Winter 1984 (reprint).
8. Task Force on State and Local Government Initiatives in Industrial Competitiveness of the President's Commission on Industrial Competitiveness, *Innovations in Industrial Competitiveness at the State Level* (Palo Alto, Calif.: Stanford Research Institute International, December 1984), pp. 13-15.
9. Plosila, "Pennsylvania's Ben Franklin Partnership," p. 6.
10. Office of Technology Assessment, U.S. Congress, *Technology, Innovation, and Regional Economic Development* (Washington, D.C.: U.S. Government Printing Office, 1984), p. 3.
11. Ibid.
12. Task Force on Technological Innovation, *Technology & Growth: State Initiatives in Technological Innovation* (Washington, D.C.: National Governors' Association, October 1983), p. 5.
13. Plosila, "Pennsylvania's Ben Franklin Partnership," p. 7.
14. Ibid.
15. "Ben Franklin Partnership Challenge Grant Program for Technological Innovation: 22 Month Progress Report" (Harrisburg, Penn.: Ben Franklin Partnership Fund Board, February 1985), pp. 3-4.
16. "The Greenhouse Compact," Report by the Rhode Island Strategic Development Commission, November 1983.

17. *The New York Times*, June 10, 1984.

18. Thomas J. Anton and Darrell M. West, "Nothing for Something: Popular Reactions to New Industrial Policy" (Providence, R.I.: Brown University, 1984).

19. Ibid., p. 1.

20. John Carroll, Mark Hyde, and William Hudson, "Economic Development Policy: Why Rhode Islanders Rejected the Greenhouse Compact," *State Government*, The Council of State Governments, Fall 1985, p. 112.

Appendix

CCSSO
Study Commission Survey on Education and the Economy

CCSSO Study Commission Survey on Education and the Economy

Collected by Dr. Irene Bandy, Assistant Superintendent of Education, Ohio Department of Education, 1986

State	Dept. Policy Ec. Dev.	State Policy Ec. Dev.	Dept. Forum (Type)	Formal Input Rev. Pol.	Standards Requirements: Economy	Productivity	International	Work Ethic	Entrepreneurship	Career Exploration	Statewide Job Market Data in Dept.	Voc. Retrng. (Funding)	Tech. Asst. to Bus./Ind. on Tech.	Artic. Between Sec./Postsec. Voc. Educ.
Alabama	No	Yes	No	Yes	Yes/ Required	No	No	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Labor & Bur. Emp. Service	Yes/Education & Development	Yes	Yes/Staff Development & Curriculum
Alaska	No	Yes	Yes/Gen. Meetings	Yes	No	No	No	No	No	No	Yes/Labor	No	No	Yes/Staff Development, Curriculum & Facilities
Arizona	No response	Yes	Yes/Adv. Comm.	Yes	Yes/ Required	Yes/Not Required	No	No	No	Yes/ Required	Yes/ Economic Section	Yes/ Education Economic Ser., Business-Industry	Yes	Yes/Facilities & Curriculum
Arkansas	Yes	Yes	Yes/Gen. Meetings	Yes	Yes	Yes	Yes	Yes	Yes	Yes/ Required	No	Yes/ Education	Yes	Yes/Curriculum
California	No	Yes	Yes/Adv. Comm. & Gen. Meetings	No	Yes/ Required	Yes/Not Required	Yes/Not Required	No	Yes/Not Required	Yes/Not Required	No	No	No	Yes/Curriculum & Facilities
Colorado	No	No	Yes/SEPS	No	No	No	No	No	No	No	Yes	No	No	Yes/Facilities & Curriculum

110

Connecticut	No Response	No	Yes/Adv. Comm.	Yes	Yes/Not Required	No	No	No	No	Yes/Not Required	No	No	No	Yes
Delaware	No	Yes	No	No	Yes/ Required	Yes/ Required	No	Yes/ Required	Yes/ Required	Yes/ Required	No	Yes/ Business-Industry, Development	No	Yes/Curriculum
District of Columbia	No	Yes	Yes/Comm. Meetings	Yes	Yes/ Required	Yes/ Required	Yes/ Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes, Labor, Emp. Ser. & Development	Yes/ Education Business-Industry	No	Yes/Curriculum, Staff Development & Facilities
Florida	Yes	Yes	Yes/Gen. Meetings, Coalition & Adv. Comm.	Yes	Yes/ Required	Yes/ Required	Yes/ Required	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/Labor & Bur. Emp. Ser.	Yes/ Education	No	Yes/Facilities, Curriculum & Staff Development
Georgia	No	No	Yes/Adv. Comm.	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes/Post Sec. Vocational	No	Yes/Curriculum & Staff Development
Hawaii	Yes	Yes	Yes/Gen. Meetings	Yes	Yes/ Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	No	No	Yes	Yes/Staff Development & Curriculum
Idaho	No	Yes	No	Yes	Yes/ Required	No	No	No	No	Yes/ Required	No	Dept. of Voc. Educ.	No	Dept. of Voc. Educ.
Illinois	No	Yes	Yes/Gen. Meetings, Coalition & Adv. Comm.	No Response	Yes/ Required	No	No	No	No	No	Yes/Labor Development & Bur. Emp. Services	Yes/Educ. Development & Business-Industry	No	Yes/Staff Development, Curriculum & Facilities
Indiana	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes/ Required	No	No	No	No	No	No	No	No	Yes/Facilities & Curriculum
Iowa	No	No	Yes/Gen. Meetings & Adv. Comm.	No	Yes/Not Required	Yes/Not Required	No	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/Labor, Development & Bur. Emp. Ser.	Yes/Education, Development & Business/Ind.	Yes	Yes/Staff Development, Facilities & Curriculum
Kansas	No	Yes	Yes/Adv. Comm.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes/ Development	Yes/Education & Development	Yes	Yes/Curriculum & Staff Development
Kentucky	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes/Bur. Emp. Ser.	Yes/ Education & Business-Industry	Yes	Yes/Curriculum, Staff Development & Facilities

CCSSO Study Commission Survey on Education and the Economy (continued)

State	Dept. Policy Ec. Dev.	State Policy Ec. Dev.	Dept. Forum (Type)	Formal Input Rev. Pol.	Standards Requirements: Economy	Productivity	International	Work Ethic	Entrepreneurship	Career Exploration	Statewide Job Market Data in Dept.	Voc. Petrn. (Funding)	Tech. Asst. to Bus./Ind. on Tech.	Artic. Between Sec./Postsec. Voc. Educ.
Louisiana	No	Yes	Yes/Adv. Comm.	No	Yes/ Required	No	No	No	Yes/ Required	Yes/Not Required	Yes/Labor	Yes/ Education	No	Yes/Curriculum & Staff Development
Maine	No Response	Yes	Yes/Gen. Meetings, Adv. Comm. & Coalition	Yes	No	No	No	No	No	No	Yes/Labor	Yes/Education, Bur. Emp. Ser. & Business/Ind.	Yes	Yes/Facilities
Maryland	No	Yes	Yes/Gen. Meetings, Adv. Comm. & Coalition	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes/Facilities, Staff Development & Curriculum
Massachusetts	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	No	No	No	No	No	No	Yes/Div. of Employment Security	No	No	Yes/Curriculum
Michigan	No Response	No	No	Yes	No	No	No	No	No	No	Yes/Labor & Bur. Emp. Ser.	Yes/Education & Business-Industry	No	Yes/Facilities, Curriculum & Staff Development
Minnesota	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	No	No	No	No	No	No	No	No	No	Yes/Facilities, Curriculum & Staff Development
Mississippi	No	Yes	Yes/Adv. Comm.	No	Yes/ Required	Yes/ Required	Yes/ Required	No	No	Yes/ Required	Yes/Bur. Emp. Ser.	Yes/ Education	No Response	Yes/Facilities, Curriculum & Staff Development
Missouri	No	Yes	No	No	No	No	No	No	No	No	Yes/Labor, Development & Bur. Emp. Ser.	Yes/Education, Development & Business-Ind.	Yes	Yes/Curriculum
Montana	No	Yes	No	No	No	No	No	No	Yes/ Required	Yes/ Required	No	Yes	Yes	Yes/Curriculum

Nebraska	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes/ Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Labor	Yes/Education, Business-Industry	Yes	Yes/Curriculum
Nevada	Yes	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes/ Required	Yes/ Required	Yes/ Required	No	No	Yes/Not Required	No	Yes/Education Development & Business-Ind.	No	Yes/Facilities & Curriculum
New Hampshire	No Response	Yes	No	No Response	Yes/ Required	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/ Required	Yes/Not Required	No	No	No	Yes/Curriculum & Staff Development
New Jersey	No Response	Yes	Yes/Adv. Comm. & Task Force	No	No	No	No	No	No	Yes/ Required	Yes/Labor	Yes/Business-Industry & Development	No	Yes/Facilities, Staff Development & Curriculum
New Mexico	No	Yes	No	No	No	No	No	No	No	No	No	Yes/ Education	Yes	Yes/Curriculum & Facilities
New York	Yes	Yes	Yes/Adv. Comm.	No	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/ Education	Yes/Labor	Yes	Yes/Facilities, Curriculum & Staff Development
North Carolina	No	Yes	Yes/Gen. Meetings & Adv. Comm.	No	Yes/ Required	Yes/ Required		Yes/ Required	Yes/ Required	Yes/ Required	Yes	Yes/Comm. College	No	Yes/Curriculum
North Dakota	Yes	Yes	Yes/Gen. Meetings, Adv. Comm. & Coalition	Yes	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Emp. Ser.	Yes/ Education	Yes	Yes/Curriculum, Facilities & Staff Development
Ohio	No	Yes	Yes/Gen. Meetings, Adv. Comm. & Coalition	Yes	Yes/Not Required	No	No	No	Yes/Not Required	Yes/Not Required	Yes/Labor & Bur. Emp. Ser.	Yes/Education Development & Business-Ind.	Yes	Yes/Facilities, Curriculum & Staff Development
Oklahoma	No	Yes	No	Yes	No	No	No	No	No	No	Yes/Bur. Emp. Ser.	No	No	Yes/Curriculum & Staff Development
Oregon	No	Yes	Yes/Gen. Meetings & Adv. Comm.	No	Yes/ Required	Yes/ Required	Yes/ Required	No Response	No Response	Yes/ Required	Yes/Bur. Emp. Ser.	Yes/Education & Business-Industry	Yes	Yes/Curriculum & Facilities
Pennsylvania	No Response	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Gov. Office	Yes/ Education	Yes	Yes/Curriculum & Facilities

Appendix

CCSSO Study Commission Survey on Education and the Economy (continued)

State	Dept. Policy Ec. Dev.	State Policy Ec. Dev.	Dept. Forum (Type)	Formal Input Rev. Pol.	Standards Requirements: Economy	Productivity	International	Work Ethic	Entrepreneurship	Career Exploration	Statewide Job Market Data in Dept.	Voc. Petrn. (Funding)	Tech. Asst. to Bus./Ind. on Tech.	Artic. Between Sec./Postsec. Voc. Educ.
Rhode Island	No	Yes	Yes/Adv. Comm.	No	Yes/ Required	No	No	No	No	Yes/Not Required	Yes/Bur. Emp. Ser.	Yes/ Education, Development & Business-Industry	No	Yes/Curriculum & Staff Development
South Carolina	No	Yes	Yes/ Economic Council	No	Yes/ Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Bur. Emp. Ser.	Yes/Varies	No	Yes/Facilities & Curriculum
South Dakota	No Response	Yes	Yes/Gen. Meetings, Adv. Comm. & Coalition	Yes	No Response	No Response	No Response	No Response	Yes	No Response	Yes/Labor	Yes/ Education, Development & Business-Industry	Yes	Yes/Curriculum, Facilities & Staff Development
Tennessee	No	No Response	Yes/Adv. Comm.	No	Yes/ Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Labor	Yes/ Education & Development	Yes	Yes/Curriculum, Facilities & Staff Development
Texas	No Response	No	Yes/Adv. Comm.	Yes	Yes/ Required	Yes/ Required	Yes	Yes/ Required	Yes/ Required	Yes/ Required	Yes/Labor & Bur. Emp. Ser.	No	No	Yes/Curriculum & Facilities
Utah	Yes	Yes	Yes/Adv. Comm., Gen. Meetings & Coalition	Yes	Yes/ Required	Yes/ Required	Yes/Not Required	No	Yes/ Required	Yes/ Required	Yes/Labor, Development & Bur. Emp. Ser.	Yes/ Education	Yes	Yes/Curriculum, Facilities & Staff Development
Vermont	Yes	Yes	Yes/ Coalition	No	Yes	No	Yes	No	No	Yes	Yes/Bur. Emp. Ser.	Yes/ Development	No Response	Yes/Curriculum

Virginia	No Response	Yes	Yes/Adv. Comm. & Gen. Meetings	No	Yes	Yes	No	Yes	Yes	Yes	Yes/Labor	Yes/ Education & Development	No	Yes/Curriculum & Facilities
Washington	No	Yes	Yes/Adv. Comm. & Coalition	Yes	No	No	No	No	No	Yes	No	No	No	Yes/Curriculum, Facilities & Staff Development
West Virginia	No	Yes	Yes/Gen. Meetings & Adv. Comm.	Yes	Yes/ Required	Yes/ Required	Yes/Not Required	Yes/ Required	Yes/Not Required	Yes/ Required	No	Yes/ Education	Yes	Yes/Curriculum, Facilities & Staff Development
Wisconsin	Yes	Yes	Yes/Gen. Meetings	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes/Curriculum & Facilities
Wyoming	No	No Response	Yes/ Coalition	No	Yes/Not Required				Yes/ Required	Yes/Not Required	No	No	No	Yes/Staff Development
North Mariana Islands	No	Yes	Yes/Gen. Meetings & Adv. Comm.	No	No	No	No	No	No	No	No	No	No	No
Puerto Rico	No	Yes	Yes/Adv. Comm.	Yes	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Labor	Yes/ Development	No	Yes/Curriculum & Staff Development
Virgin Islands	No	Yes	Yes/Adv. Comm. & Coalition	No	No	No	No	Yes/Not Required	Yes/Not Required	Yes/Not Required	Yes/Labor	No	No	Yes/Curriculum & Staff Development

Selected References and Resources

The Office of Educational Research and Improvement of the U.S. Department of Education is funding the *National Center on Education and Employment* to sponsor research on work-related education policies and practices across the country. The center is a consortium of several institutions: Teachers College at Columbia University and the Rand Corporation of Santa Monica, California, and Washington D.C. For further information, write or call: NCEE, Teachers College, Columbia University, Box 174, New York, N.Y. 10027, (212) 678-3091.

The *Committee for Economic Development*, an independent research and educational consortium of business executives and educators, is developing policy recommendations to encourage investment in and an upgrading of the nation's public schools. It has sponsored two publications that address private sector involvement in the education reforms and in state economic development policies, *Investing in Our Children* (1985) and *Leadership for Dynamic State Economies* (1986). For further information, write or call: CED, 477 Madison Avenue, New York, N.Y. 10022, (212) 688-2063.

The *Carnegie Forum on Education and the Economy* is a 10-year effort of The Carnegie Corporation of New York, established in January 1985, to help develop education policies to meet future economic challenges to the country. *A Nation Prepared*, the first report, focuses on the need to upgrade the teaching profession. Carnegie also has funded a three-year project at the National Governors' Association to assist states in implementing the school restructuring policies recommended in the report. For additional information, call or write: The Carnegie Forum on Education and the Economy, 1380 18th Street, N.W., Suite 401, Washington, D.C. 20036, (202) 463-0747; The National Governors' Association, Suite 250, 444 N. Capitol Street, N.W., Washington, D.C. 20001, (202) 624-5300.

The following list, compiled by Dan Pilcher, represents some major works in the area of state economic and trade development.

Bartsch, Charles. *Reaching for Recovery in Michigan.* 1985. The Center for Regional Policy, Northeast-Midwest Institute, 218 D Street, S.E., Washington, D.C. 20003. Phone: (202) 544-5200. Cost: $10 plus $2 postage/handling; order must be accompanied by payment.

Bettger, Gary. "Business Incubators: A New Tool for State Economic Development." October 1986. National Conference of State Legislatures, 1050 17th Street, Suite 2100, Denver, CO 80265. Phone: (303) 623-7800. Copies are available to individual legislators and legislative staff free of charge. For others, the cost is $5. Contact: Dan Pilcher.

_____. "State Venture Capital Initiatives." *State Legislative Report.* 1986. National Conference of State Legislatures, 1050 17th Street, Suite 2100, Denver, CO 80265. Phone: (303) 623-7800. Copies are available to individual legislators and legislative staff free of charge. For others, the cost is $5. Contact: Becky Duffield.

Building the New Economy: States in the Lead. Robert Friedman and William Schweke et al. Edited by Dave Jones. August 1986. Corporation for Enterprise Development, 1725 K Street, N.W., Suite 1401, Washington, D.C. 20006. Phone: (202) 293-7963. Cost: $15. Orders must be prepaid.

Clarke, Marianne K. *Revitalizing State Economies: A Review of State Economic Development Policies and Programs.* August 1986. Center for Policy Research and Analysis, National Governors' Association. To order, send $12.50 to the NGA Publications Department, Suite 250, 444 N. Capitol Street, N.W., Washington, D.C. 20001. For information, call (202) 624-5300.

Directory of Incentives for Business Investment and Development in the United States; A State-by-State Guide. 1986. National Association of State Development Agencies. To order, call or write: The Urban Institute Press, Hampden Station, Box 19958, Baltimore, Md. 21211. Phone: (301) 338-6951. Cost: $65 plus $2 for shipping/handling.

Directory of State Small Business Issues: Looking Toward the Future. October 1985. Office of the Chief Counsel for Advocacy, U.S. Small Business Administration, 1441 L Street, N.W., Washington, D.C. 20416. Phone: (202) 634-7235.

Doyle, Peter H., and Brisson, Candace. *Partners in Growth: Business-Higher Education Development Strategies.* 1985. Northeast-Midwest Institute, 218 D Street, S.E., Washington, D.C. 20003. Phone: (202) 544-5200. Cost: $5 plus $2 postage/handling; order must be accompanied by payment.

Federal and State Roles in Economic Development. Hearings before the Intergovernmental and Human Relations Subcommittee of the Committee on Government Operations, U.S. House of Representatives. December 2, 4-5, 1986. 57-629 0-86-1. Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, D.C. 20402.

**Financing Innovation in Enterprise: Beyond Venture Capital.* James O. Gollub, Principal Author. July 1985. Public Policy Center, Stanford Research Institute (SRI) International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025. Phone: (415) 859-2616.

Forging Links for a Productive Economy: Partnerships Among Government, Business, and Education. 1984. Council of State Governments, P.O. Box 11910, Lexington, Ky. 40578. Phone: (606) 252-2291.

Grossman, Ilene. *Initiatives in State Economic Development.* 1985. Midwestern Conference, Council of State Governments, 203 N. Wabash, Suite 1200, Chicago, Ill. 60601. Phone: (312) 236-4011.

Hamilton, William; Ledebur, Larry; and Matz, Deborah. *Industrial Incentives: Public Promotion of Private Enterprise.* 1985. ASLAN Press, 2021 K Street, N.W., Suite 711, Washington, D.C. 20006. Phone: (202) 887-8148. Cost: $15 plus $2 shipping and handling.

The Higher Education-Economic Development Connection: Emerging Roles for Public Colleges and Universities in a Changing Economy. 1986. Tom Chmura, Chief Author. Public Policy Center, Stanford Research Institute International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025 (415) 859-2616. Published by the American Association of State Colleges and Universities, 1 Dupont Circle, Suite 700, Washington, D.C. 20036, under a cooperative agreement with the Economic Development Administration, U.S. Department of Commerce.

Innovations in Industrial Competitiveness at the State Level. December 1984. Report to the President, Commission on Industrial Competitiveness. Public Policy Center, Stanford Research Institute International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025. Phone: (415) 859-2616.

**Investing in People: New Directions in Developing Human Capital to Meet the Needs of a Dynamic Economy.* Tom Chmura, Principal Author. July 1985. Public Policy Center, Stanford Research Institute International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025. Phone: (415) 859-2616.

Leadership for Dynamic State Economies. October 1986. R. Scott Fosler, Vice President and Director of Government Studies and Project Director, Subcommittee on State Economic Progress, Committee for Economic Development, 1700 K Street, N.W., Washington, D.C. 20006. Phone: (202) 296-5860. Cost: $9.50, prepayment must accompany order.

Living on the Leading Edge: State Policy Issues for Education and Economic Development in a Global Economy. By the Task Force on Education and Economic Growth and Development, National Conference of Lieutenant Governors. To order, write or call the Council of State Governments, P.O. Box 11910, Lexington, Ky. 40578. Phone: (602) 252-2291. Cost: $15.

**Managing the Renewal of Mature Industries: Beyond Smokestacks and Sunsets.* July 1985. Julian Nikolchev, Principal Author. Public Policy Center, Stanford Research Institute International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025. Phone: (415) 859-2616.

Matz, Deborah. *An Analysis of Innovative State Economic Development Financing Programs.* 1985. National Association of State Development Agencies, Hall of the States, Suite 245, 444 N. Capitol Street, N.W., Washington, D.C. 20001. Phone: (202) 625-5411.

The 1983 Guide to Government Resources for Economic Development. 1982. Northeast-Midwest Institute, 218 D Street, S.E., Washington, D.C. 20003. Phone: (202) 544-5200.

Pilcher, Dan. *The States and International Trade: New Roles in Export Development.* 1986. National Conference of State Legislatures, 1050 17th Street, Suite 2100, Denver, CO 80265. Phone: (303) 623-7800. Copies are available to individual legislators and legislative staff free of charge. For others, the cost is $10. Contact: Becky Duffield.

**Promoting Advanced Technology Appropriate to a State's Economy: Beyond "High Tech" Highways.* July 1985. Ted Lyman and Douglas Henton, Principal Authors. Public Policy Center, Stanford Research Institute International, 333 Ravenswood Avenue, Menlo Park, Calif. 94025. Phone: (415) 859-2616.

Reinshuttle, Robert. *Economic Development: A Survey of State Activities.* 1983. Council of State Governments, P.O. Box 11910, Lexington, Ky. 40578. Phone: (606) 252-2291. Cost: $15.

State Activities in Capital Formation: Venture Capital, Working Capital, and Public Pension Fund Investments. June 1985. Office of the Chief Counsel for Advocacy, U.S. Small Business Administration, 1441 L Street, N.W., Washington, D.C. 20416. Phone: (202) 634-7235.

State Activities in Venture Capital, Early-Stage Financing, and Secondary Markets. May 1984. Office of the Chief Counsel for Advocacy, U.S. Small Business Administration, 1441 L Street, N.W., Washington, D.C. 20416. Phone: (202) 634-7235.

The States and Small Business: Programs and Activities. November 1986. Office of the Chief Counsel for Advocacy, U.S. Small Business Administration, 1441 L Street, N.W., Washington, D.C. 20416. Phone: (202) 634-7235.

States in the International Economy. August 1985. Kathleen Joyce. Committee on International Trade and Foreign Relations, National Governors' Association. National Governors' Association, Suite 250, 444 N. Capitol Street, N.W., Washington D.C. 20001. Phone: (202) 624-5300. Cost: $10.

Taken for Granted: How Grant Thornton's Business Climate Index Leads States Astray. By the Corporation for Enterprise Development, with the Institute on Taxation and Economic Policy and Mt. Auburn Associates. Order from the Corporation for Enterprise Development, 1725 K Street, N.W., Suite 1401, Washington, D.C. 20006. Phone: (202) 293-7963. Cost: $10. Orders must be prepaid.

Technology and Growth: State Initiatives in Technological Innovation. October 1983. NGA Task Force on Technological Innovation. National Governors' Association, Suite 250, 444 N. Capitol Street, N.W., Washington, D.C. 20001. Phone: (202) 624-5300. Cost: $8.

Technology, Innovation, and Regional Economic Development. July 1984. Office of Technology Assessment, U.S. Congress. OTA-BP-238. To order, write Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, D.C. 20402.

Technology, Innovation, and Regional Economic Development: Encouraging High-Technology Development—Background Paper #2. February 1984. Office of Technology Assessment, U.S. Congress. OTA-BP-25. Library of Congress Catalog Card No. 84-606013. To order, write Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, D.C. 20402.

Vaughan, Roger; Pollard, Robert; and Dyer, Barbara. *The Wealth of States: Policies for a Dynamic Economy.* May 1986. Council of State Planning Agencies, Hall of the States, Room 291, 400 N. Capitol Street, Washington, D.C. 20001. (202) 624-5386.

*Note: These publications were prepared by SRI International as part of a joint project with the Council of State Planning Agencies (CSPA) under a grant from the Economic Development Administration of the U.S. Commerce Department. The project sought to identify new strategies for economic development at the regional and state levels. The publications were presented at "An Agenda for a Dynamic Economy," a joint symposium of CSPA and SRI International, July 14-16, 1985, Menlo Park, California.

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